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Economic and Institutional Aspects

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Chapter 1

Introduction

The fall of the Berlin wall in November 1989 can be seen as the watershed event that put central and eastern European countries on irreversible paths towards market-based economic systems. These countries peacefully took the unprecedented decision to abandon their centrally planned economies to create functioning market economies from scratch.

With over a decade of experience in transition, the first lessons of this unique historical experiment can be drawn. The creation of market economies has turned out to be more challenging and less smooth than expected at the beginning of the transition process. Substantial differences in reform progress of transition economies have opened up and one can even speak of a *Great Divide* (Berglöf and Bolton (2002)). Some countries succeeded in initiating far-reaching reforms and overcome their transformational recessions, while others continue to wrestle with their past.

Initial conditions were decisive for economic revival. However, the divergence of economic performances is not only a legacy of history but also an outcome of economic reform efforts. At the start of the transition process stabilisation, liberalisation and privatisation were at the core of the transformation agenda in all central and eastern European countries and, as the IMF (2000) noted, institutional reforms received far less attention than macroeconomic reforms.

Experience now argues that establishing sound market-supporting institutional infrastructure to underpin newly emerging market economies is fundamental for any country wanting to cross the *Great Divide*. Time has also made researchers and policymakers wiser to the extent that, after a decade of struggle, we all understand that transition is a complex and long-winded task. Major challenges and setbacks surely lie ahead.

Overview

In line with current research on transition economics, the main objective

of this work is to analyse institutional changes in the transition process.

Chapter 2 is devoted to identify problems the European Union may face from eastward enlargement and how membership might influence economic development in accession candidates. The imminent integration of former centrally planned economies with western European countries plays an important role in the transition process of many central and eastern European countries and strongly influences the outcome of economic and institutional changes. Despite the historical peculiarity of the upcoming enlargement round, comparison with the earlier southern enlargement provides useful insights into mechanisms of enlargement and problems the EU might encounter. Chapter 2 explores the past experience of enlarging the EU referring to the economic situation of the applicants in comparison to the member countries and the challenges to enlargement. In addition to providing background information on transition countries, lessons from southern enlargement for the upcoming enlargement are drawn. Experience shows that membership does not confer rapid economic progress to new entrants. Instead, strong governmental commitment to market-oriented reforms is needed to raise economies to levels that match EU core states.

At this point in the discussion, we identify the crucial importance of hardening budget constraints. Since Kornai (1980), the adverse effects of soft budget constraints have been well-documented and more recently, several theoretical explanations for the presence of soft budget constraints have been put forward. Research in Chapters 3 and 4 is thus devoted to problems of soft budget constraints in transition countries.

In Chapter 3, we empirically test theories on the causes of soft budget constraints. A panel data set consisting of company account data for Bulgarian and Romanian manufacturing firms is used, covering the period 1995-1999. The results suggest that the probability of finding soft budget constraints depends on the degree of competition within the sector and ownership structures of firms. We further find that sociopolitical concerns about employment increase the probability of soft budget constraints provided that firms are loss-making. Thus, as already suggested in the theoretical models on the causes of soft budget constraints, our empirical results strongly support the hypotheses that competition, privatisation and firm size largely account for the presence of soft budget constraints.

Chapter 4 considers trade credits as part of the problem of soft budget constraints in transition countries. In advanced market economies, the use of trade credits is an important way of short-term financing and generally considered part of normal business practice. In contrast, some transition countries have experienced a rapid accumulation of trade credits leading to interlocking webs of arrears and collective bail-outs by the government. Thus,

we look to see whether trade credits represent normal business practice comparable to advanced market economies or whether trade credits are a systematic phenomenon supporting soft budget constraints of firms in transition. The results suggest that trade credits may have negative spill-over effects on other firms by worsening their financial situation. The chapter concludes that the problem of interlocking chains of arrears is more pronounced in countries that are less committed to market-economy reforms.

In Chapter 5, we utilise macroeconomic data to illustrate the impact of implementing institutions that support free competition by opening up markets and hardening budget constraints on economic performance. We apply panel data analysis to a sample covering transition economies in central and eastern Europe, the Baltics and the CIS. The results support the notion that economic performance is impaired in countries that fail to develop institutions that provide incentives for restructuring and reallocating resources.

Chapter 6 summarises the results and provides concluding remarks.

Chapter 2

What is Special About Enlarging the European Union to the East? A Comparison with the Southern Enlargement

2.1 Introduction

The European Union[1] was founded in 1958 by six relatively homogeneous industrialised states.[2] As it has evolved and expanded, new entrants increased internal disparities, especially in terms of per capita incomes. There was a particularly sharp increase in such disparities with the admission of Greece, Portugal and Spain.

The end of state socialism in central and eastern European countries (CEECs) now allows further political and economic integration of Europe. In 1998, the EU initiated accession negotiations with a "first wave" of CEECs.[3] In early 2000, the EU entered into membership talks with a "second wave"[4] of CEECs. Institutional development and macroeconomic performance of CEECs, particularly Bulgaria and Romania,[5] distantly lag EU members.

[1]The European Union or EU, and its predecessor the European Community are used synonymously throughout this chapter.

[2]Belgium, France, Germany, Italy, Luxembourg and the Netherlands.

[3]The "first wave" (Luxembourg group) includes the Czech Republic, Estonia, Hungary, Poland and Slovenia.

[4]"Second-wave" (Helsinki group) countries include Bulgaria, Latvia, Lithuania, Romania and Slovakia.

[5]Most second-wave countries are catching up with the first-wave countries. This can be seen, e.g., in progress in accession negotiations with the European Union. The first-wave

Thus, eastern enlargement will likely increase regional disparities and income disparities[6] as did southern enlargement earlier.

The record of southern enlargement[7] in the 1980s provides insights into the challenges currently facing the EU with admission of CEEC members. As in eastern Europe under socialism, the state played a dominant role in southern European countries before accession. Also like the CEECs, the three southern entrants embraced democracy only shortly before they joined the EU. In both groups, too, agriculture plays a prominent role in the various national economies and ahead of entry they are at the low end of the European income hierarchy. Given these similarities, the outcomes of the upcoming enlargement round may well resemble those of southern enlargement.

Nevertheless, in outlining and comparing characteristics of old and new entrants,[8] and identifying major challenges of enlargement, we should remain aware that much has happened since Portugal and Spain joined the EU in 1986. With the *Single European Act*[9] and the *Maastricht Treaty*,[10] the Union has been transformed from a straightforward customs union to a sophisticated Economic and Monetary Union. The applicant countries must adopt the *acquis communautaire*, i.e. the rules of the EU, which have continuously been extended. Requirements for entry have grown in number and become more demanding.

Section 2.2 sketches out economic development levels, macroeconomic performances and microeconomic restructuring of the former and future entrants in comparison to EU member states. Section 2.3 contains a discussion of the major obstacles to EU enlargement, notably agriculture, migration policy, changes in EU decision-making processes and budgetary spending. Section 2.4 analyses the effects membership may have on accession countries. Conclusions are presented in the last section.

countries, as well as Latvia, Lithuania and Slovakia had closed between 24 and 28 chapters (out of the *acquis communautaire*'s total of 31) as of the end of June 2002. Bulgaria had closed 20 and Romania only 12 chapters (European Commission (2002a)).

[6]The standard deviation of GDP per capita (measured by purchasing power) would move up from 5.0 (EU15) to 7.4 (EU27) based on 1998 figures (European Commission (2001b)).

[7]Sometimes referred to as the "second" round of EU enlargement.

[8]We refer here only to new entrants from central and eastern Europe. The membership candidacies of Malta and Cyprus are not considered.

[9]The aim of the *Single European Act* was the establishment by the end of 1992 of a functioning single market with free movement of capital, labour, services and goods. The economic and social cohesion of the member countries secondary goal.

[10]The treaty provides for a single European currency.

2.2 Key economic indicators

The two surveyed country groups – the recent southern European entrants (Greece, Portugal and Spain) and CEECs seeking EU membership – are relatively populous (see Figure 6.1 in the appendix to this chapter). In 1983 some 57 million people lived in the southern European accession candidate countries. Today, about 104 million CEEC citizens could potentially become EU residents. The inclusion of the southern countries increased the EU population by almost 22% when compared to the population of the EU9.[11] Similarly, the EU's current population (EU15)[12] would grow by nearly 20% if the most eligible CEEC aspirants are admitted.[13] If all applicant countries are allowed in, the EU's population would grow by 29%.

More striking, perhaps, is the size of entrant economies in comparison to the EU. Measuring economies as GDP at current prices (Figure 6.2 in the appendix to this chapter), we see that both enlargement rounds add relatively little to the Union market. Southern enlargement raised the EU's GDP by nearly 11%. The inclusion of CEEC aspirants, apart from Bulgaria and Romania, is estimated to increase the EU's total GDP just 4.0%. With Bulgaria and Romania, the increase would be 4.6%. Even recognising that the base is larger in the case of eastern enlargement (15 instead of nine countries), it is clear southern enlargement involved a larger initial economic contribution to the EU economy.

2.2.1 Economic development levels

The EU aspirants of the 1980s were significantly poorer than EU12 members (Figure 6.3 in the appendix to this chapter), with per capita incomes ranging between 30% (Portugal) and 57% (Spain) of the EU12 average.[14] Applicant countries of eastern Europe lag EU member states even further (see Figure 6.4 in the appendix to this chapter). For example, GDP per capita as a percentage of average GDP per capita of the EU15 countries in 2000 amounted to 44% in the case of the best-performing CEEC (Slovenia), 24% for the Czech Republic and 22% for Hungary. Per capita incomes in Bulgaria and Romania, were just 7% and 8%, respectively, of the EU15 average. When

[11] The EU9 comprised Belgium, Germany, France, Italy, Luxembourg, the Netherlands, Ireland, Great Britain and Denmark.

[12] The EU15 includes Greece, Portugal, Spain, Austria, Finland and Sweden.

[13] According to recent information, the most likely aspirants are the first-wave countries as well as Slovakia, Latvia and Lithuania. The European Commission stated Bulgaria and Romania have yet to meet the requirements for membership (European Commission (2001e)).

[14] Data for EU9 were not available.

GDP is expressed in terms of purchasing power,[15] however, the differences between aspirants and incumbents in both the southern and eastern groups decrease. In 1987, Portugal reduced the gap to 53%, Greece to 50% and Spain came close to 67% (Eurostat (1999)). The relative position of eastern countries also improves. Slovenia climbs to 69.4%, the other CEECs range between 58.8% (Czech Republic) and 23% (Romania) of the EU15 average (Eurostat (2002c)).[16] Thus, southern enlargement involved admitting countries where the per capita income gap was smaller on average than between the EU and current membership prospects.

2.2.2 Macroeconomic stabilisation

Accession to the EU is contingent on an applicant's ability to meet requirements defined in the *Copenhagen Summit Criteria* approved in 1993. It provides guiding principles for CEEC accession to the EU. Membership requires that candidate countries demonstrate three things: stable political institutions,[17] a functioning market economy and capacity to cope with the competitive pressures and market forces within the EU. The last two requirements imply the attainment of macroeconomic stability sufficient to give economic agents an environment of predictability in which to make decisions (European Commission (2001e)). Such an environment is seen as the result of price stability, sound public finances and external balance. In the following discussion, we appraise the overall macroeconomic conditions in the candidate countries vis-à-vis the southern countries.[18] More figures also are given in Tables 6.1 and 6.2 in the appendix to this chapter.

In the lead-up to accession, inflation was relatively high in Greece and Portugal compared to the EU and Spain. At the start of transition in the early 1990s, inflation rates jumped drastically in all CEECs. Although inflation eventually slowed, the rate of price increase today in most accession countries still exceeds the EU15 average. The price jump in transition countries initially reflected the abolition of administered prices and the opening up of foreign trade. Later inflation has frequently been driven by monetar-

[15] This enables a correct comparison of volume of goods and services produced by different countries.

[16] In 1998, GDP per capita measured in terms of purchasing power for all CEECs amounted to 38% of the EU average (European Commission (2001b)).

[17] Currently, all applicant countries except Turkey meet the Copenhagen political criteria (European Commission (2001e)).

[18] Our discussion here is deliberately kept to basics. For detailed information, refer to the EBRD's Transition Report (2001) and the European Commission's Progress Report (European Commission (2001e)). We also refer extensively to OECD (1986a), OECD (1986b), OECD (1986c) studies of southern European countries.

ily financed fiscal deficits,[19] soft lending of banks and excessive wage hikes. Thus, high inflation in a transition country today is still likely to signal loose monetary policy or structural inertia.[20]

Budgetary discipline in pre-entry Greece and Portugal was quite lax compared to the EU9. Most CEEC candidates, in contrast, are characterised by moderate government deficits. CEEC governments have managed to hold down public debt and public deficits even in the face of severe strain. However, tight fiscal policy may become more problematic in the future as pressure for public spending builds along with social security reforms, restructuring of state-owned enterprises, structural and institutional adjustments (e.g. implementing the *acquis*). Higher spending in any of these areas could unbalance public budgets.[21] Difficulties also arise on the revenue side, particularly in less advanced transition countries that must cope with tax shortfalls due to poor collection[22] and large shadow economies.

Greece's internal imbalances were mirrored by a deterioration of its external position. Decisive factors in Greece's case were its reduced competitiveness after 1982 and a strong demand for imported goods. These factors are likely to be relevant contributors to current account deficits of CEECs as well. Indeed, CEECs currently have large external imbalances with high current account deficits. Moreover, the relative high marginal productivity of capital in accession countries may be attributed to external imbalances; the counterpart of large capital inflow is often a large current account deficit.

Unemployment is another important indicator of a country's overall economic situation. In Greece and Portugal, unemployment rates have fluctuated near the EU average (see Figure 6.5 in the appendix to this chapter), while Spain has long been dogged by persistent high unemployment.[23] Unemployment rates of transition countries need to be interpreted at two levels. Superficially, they reflect the economy's ability to create new jobs, but they may also indicate failure at reform, especially in restructuring state-owned enterprises (which typically means laying off workers). The picture for CEECs

[19] In Greece and Portugal, inflationary surges in the 1980s were mainly caused by public sector financing through strong money supply growth.

[20] Of course, it may also reflect external shifts. Some of the inflation increases of 2001 in various CEECs were driven by higher oil prices (European Commission (2001e)).

[21] On the other hand, EU transfers to CEECs could also be substantial. Under the *Financial Framework for Enlargement*, transfer to new members states could reach Euro 40 billion for 2004 to 2006 (European Commission (2002b)).

[22] On average, around 20-30% of firms in CEECs failed to pay all of their taxes (EBRD (1999)).

[23] Spain's high unemployment rate has never been fully explained. It may partly be the result of high unemployment benefits and low wage flexibility (Blanchard and Jimeno (1995), Bover et al. (2000)).

is mixed (see Figure 6.6 in the appendix to this chapter). Some countries, e.g. Slovenia and the Czech Republic, outperform the EU15 average. Others, e.g. Poland, suffer from high unemployment rates. Increases in unemployment can still be ahead as tradition industries undergo structural adjustment and agricultural reform proceeds. The large agricultural sectors of some CEEC may well be major reservoirs of hidden unemployment.

In summary, Greece and Portugal were characterised by large macroeconomic imbalances in the mid-1980s. In recent years, enormous policy efforts have been undertaken in all three Mediterranean countries to bring their macroeconomic fundamentals into line with *Maastricht criteria*.[24] Evidence that their efforts at macroeconomic stabilisation have succeeded can be seen in their participation in the euro. This development could lead the way for new EU members as the prospect of joining the euro may positively influence the macroeconomic policies of candidate countries.

2.2.3 Microeconomic and institutional reforms

In addition to macroeconomic stability, candidate countries must also implement change at the microeconomic level. Such changes include the establishment of free interplay of market forces, the elimination of barriers to market entry and exit, and enforcement of property rights. They also have to comply with the obligations of membership and adopt the *acquis* [25] (European Commission (2001e)). Microeconomic reforms and institution building are key in making the transition from a centrally planned economy to a market economy and largely overlap reform requirements for EU membership. Overall, these reforms are multi-dimensional[26] and more difficult to quantify and

[24] The *Maastricht Treaty* spells out five criteria:

- Successful countries must have inflation rates no more than 1.5% above the average of the three countries with the lowest inflation rate in the Community.

- Long-term interest rates should be no more than 2% of above the average of the three lowest inflation countries. This is to ensure that inflation convergence is lasting because otherwise higher expected future inflation in a country would be reflected in higher long-term interest rates.

- The exchange rate of a country should remain within the "normal" band of the exchange rate mechanism without tension and without initiating depreciation for two years.

- The public debt of the country must be less than 60% of GDP.

- The national budget deficit must be less than 3% of GDP (European Commission (2002d)).

[25] "This requires the administrative capacity to transpose European Community legislation into national legislation, to implement it and to effectively enforce it through appropriate administrative and judicial structures." (European Commission (2001e, p.5))

[26] The EBRD categorises the core aspects of reform which are essential for a market economy. They comprise privatisation, governance and enterprise restructuring, price

compare than macroeconomic indicators.[27]

The legacy of authoritarian regimes in pre-accession Greece, Portugal and Spain was characterised by excessive state interventions, inefficient industries with low productivity, structural deficiencies (i.e. rigid labour markets, administered prices, underdeveloped financial sectors) and little exposure to international competition. These countries lacked the institutions (such as effective competition law) necessary for a functioning market economy.

The CEECs faced similar problems after the breakdown of the communist system. They implemented reforms to redirect their centrally planned economies to market-based economies. After twelve years of transition, it has become clear that structural adjustments and changes in economic institutions take time and must be underpinned with strong government commitment to reform. Although the European Commission now classifies all CEECs except Bulgaria and Romania as functioning market economies capable of coping with the competitive pressures of the EU, CEECs still face structural and institutional problems (e.g. low levels of financial intermediation and problems in implementing and enforcing bankruptcy laws). In the laggard transition countries, soft budget constraints of firms persist and governments are still largely influenced by interest groups.

The prospect of EU membership can strongly leverage reform efforts in the candidate countries that seek to meet the criteria for entering the EU and can act as an "outside anchor" in the transition process (Berglöf and Roland (1997)). EU membership was a driving force for economic reforms and institution-building in Portugal and Spain.[28] The prospect of membership can thus support a binding commitment to economic reforms and make economic changes more acceptable. An overall political consensus on advancing reforms helps to resist vested interests[29] and reduces the danger of policy reversals.

liberalisation, trade and foreign exchange systems, as well as the liberalisation and reforms of financial institutions (EBRD (2001)).

[27]For in-depth discussion of the southern European countries refer to Katseli (1990), Macedo (1990), Viñals et al. (1990) and to the OECD (1986a), OECD (1986b) and OECD (1986c). The EBRD (2001) and the European Commission (2001e) provide detailed background information on CEECs. We refer here to these publications.

[28]Greece was reluctant to implement economic changes for its first decade of membership (see Section 2.4).

[29]Large groups opposing EU membership and reforms that accompany membership have emerged in applicant countries. Influential agricultural lobbies, especially in Poland, reject membership (Inotai (1999)). On average, 59% of people in the candidate countries think that membership would be a "good thing." Support varies considerably across countries. In Estonia and Latvia, only 33% of the population think their nation should join the EU, while in Romania 80% of people favour membership (European Commission (2001a)).

2.3 Challenges to enlargement

2.3.1 Agriculture in southern and eastern Europe

Baldwin (1994) describes agriculture as a "political land mine" in any EU enlargement discussion. To understand why agriculture remains one of the thorniest issues in EU enlargement, one only needs to look at the dominant role the agrarian sector plays in accession countries and the central importance of agricultural spending in the EU budget.

In fact, agriculture's contribution to EU GDP has been declining. It had a gross value added of 3.4% of EU GDP in 1986 (EU12[30]) and just 2.1% in 2000 (EU15). The gross value added of the agricultural sectors in the southern Europe group was much higher before accession, ranging between 5.6% in Spain and 16.2% in Greece. Similarly, the agricultural sector plays a far greater role in the economies of today's aspirants than in those of current member countries. Furthermore, the share of people employed in the agricultural sector is larger in both country groups than in the EU. In 1986, between 18% (Spain) and nearly 29% (Greece) of all employed people worked in the agricultural sector, while in the EU12 only 8.5% were employed in agriculture (see Figure 6.7 in the appendix to this chapter). Among CEECs, except for the Czech Republic, more people are employed in agriculture compared to the EU15 (only 5% in the EU15 in 2000). In 2000, 43% of workers in Romania were employed in agriculture, 25% in Bulgaria and 19% in Poland (see Figure 6.8 in the appendix to this chapter).

Despite its minor contribution to EU GDP, agricultural spending dominates the EU budget.[31] The combination of a huge agrarian sector in post-communist countries and the importance of agricultural spending in EU raises the question of how to integrate applicant countries into the EU's Common Agricultural Policy (CAP). Agriculture was a central issue in Greek accession negotiations as it set the precedent for Spain and Portugal (Preston (1997)). Greece, Portugal and Spain all aspired to inject their interests into EU agricultural policy. Since their full integration into the CAP, they have continued their efforts at influencing agricultural spending for their own benefit.[32] At the time of this writing, the agriculture chapter of the *acquis* had been opened with all accession countries except Romania, but no country had managed to complete the initial negotiations. At the beginning of 2002, the European Commission (European Commission (2002c)) made its

[30] Figures for the EU9 were unavailable.

[31] About 56% of EU budget expenditures are related to agriculture (Eurostat (2001)).

[32] See section 2.3.4.

first proposal on integrating prospective members into the CAP, suggesting a ceiling on direct payments to farmers of 25% of the level paid out to EU farmers. This ceiling would then be raised gradually to 100% over ten years. The Commission's proposal displeased applicants, who felt betrayed by a policy that would give farmers in incumbent EU states four times as much financial help as them. Given the hard feeling on both sides, follow-up negotiations on agricultural subsidies and quotas will likely be quarrelsome.[33] The fundamental problem, however, is the costly, inefficient CAP itself. The Commission knows CAP reform is needed, but the political clout of EU15 farm lobbies essentially dooms efforts to amend the CAP.[34] The prospects of enlargement and higher cost within a decade could, however, provide incentives to initiate reforms of the CAP before new members enter the Union.

2.3.2 East-west migration

The treaty establishing the European Community grants free movement of workers and their dependents, as well as freedom of establishment in other member states. The treaty also abolishes discrimination based on nationality and administrative practices that might interfere with migration of workers (European Commission (2002d)). From this part of the treaty follows that many people in current member states are anxious about massive labour flows from the east to the west. They fear tougher competition for jobs and increased unemployment.[35] Concerns about the east-west movement of labour, which are mainly based on large income gaps, labour market opportunities and geographic proximity, play a dominant role in the public debate about enlargement. The current discussion largely parallels the one that occurred before southern countries joined the EU, i.e. people feared massive inflows from the poorer southern European countries (see e.g. Preston (1997)).

Figure 6.9 in the appendix to this chapter depicts the difference between immigration and emigration for the years 1970-1998 for Greece, Portugal and Spain. The data here imply that unmanageable migration flows did not result

[33]The largest contributors to the EU budget, and notably Germany, have indicated that they consider the Commission's proposal overly generous (Economist (2002)).

[34]After the first eastern enlargement round, reforms of the CAP probably will likely be even more difficult because of voting power of the new members and their interests in agricultural support (see below).

[35]Fears about labour flows from the east vary largely within the Union. They depend on both place of residence and education of people polled. Rather than spread evenly over Europe, migrants will most likely concentrate in certain regions, especially those which are close to the border where they compete predominantly with low-paid and unskilled jobs. Today, most CEEC nationals reside in Austria or Germany (European Commission (2001d)).

after the entrance of the new members or the introduction of unrestricted mobility.[36] In fact, net emigration declined in all three countries.

One possible explanation for the moderate labour movements could be improvements of the domestic economic situation. The expectation of closing the income gap, along with social and cultural ties, likely influence the decision to stay home. While it is impossible to make exact predictions about migration flows from eastern Europe to incumbent EU member states, there is evidence such flows may be quite modest.[37,38]

On the other hand, the motivation to migrate may be stronger in CEECs, as they are relatively poorer than their southern European counterparts were when they joined. Furthermore CEECs and the EU15 are marked by stronger geographical proximity with long common borders. With respect to cross-border commuting, southern EU enlargement provides no relevant precedent for the next enlargement round.

2.3.3 Decision-making in an enlarged Union

The entrance of new countries will cause a shift in the voting power among members in the decision-making institutions of the EU. The need for institutional change – and, in particular, decision-making in the *Council of Ministers* – was acknowledged before southern enlargement took place.[39] The need for change is even more urgent ahead of accession that could produce a Union with as many as 27 members. Decisions by the *Council of Ministers*, which largely set the EU's legislative agenda, provide a good overall indicator of the influence of member states on EU politics. They are made by the rule of unanimity or qualified majority. With a larger number of member states, decision-making costs will increase (Buchanan and Tullock (1962, Ch. 6)) and stalemates will be more likely. To keep the EU functional even with 27 members, an intergovernmental conference was called in Nice in December

[36] Completely unrestricted labour mobility within the EU was only granted to the Greeks, Portuguese and Spaniards after a transition period of six years.

[37] Most studies (see e.g., European Commission (2001b), Straubhaar (2001)) suggest inflows of migrants will be rather moderate and pose no serious problems to labour markets. These studies take into considerations various factors that might influence labour flows, e.g. differences in per capita income, labour market opportunities and geographical proximity.

[38] Sinn (1999) suggests people from the east might only temporarily move westward. Eventually, they will return home because of permanent higher costs abroad, such as visits home, high rents and the disadvantages of living in a foreign country.

[39] New members also send representatives to the European Commission, the European Parliament, and perhaps in the not-too-distant future to the Governing Council of the European Central Bank which influences the distribution of political power within the EU (see Baldwin et al. (2001)).

2000 to decide on changes in voting rules and vote distribution.[40]

One target was the reduction of decisions which have to be taken by unanimous agreement of all members.[41] Granting veto power to a single country in a 27-member EU could deadlock decision-making.[42] Qualified-majority rules have been extended to about two dozen articles of the treaty, but critical areas have not been shifted to qualified majority rules.[43] In the case of qualified majority voting, the number of votes for each member country are roughly based on population with more populous countries having more votes. Currently, 71.26% of all votes (62 out of 87 votes) are necessary for obtaining a qualified majority. In Nice, member states agreed on changes of the qualified majority rule to integrate the future members in the decision-making body. Under the new rule, a qualified majority would be obtained when a decision receives a certain threshold of votes.[44] A majority of member states must also approve the proposal. In addition, decisions have to be supported by at least 62% of the total population of the EU. With these two additional criteria, decision-making seems set to become even more convoluted than before.

The range of issues which have to be taken by qualified majority have widened with the *Single European Act*, the *Maastricht Treaty* and the *Treaty of Nice*. In these decision-making procedures, blocking coalitions allow groups to pool their interests. The second enlargement increased heterogeneity of the EU. Ever since poor, agricultural countries gained representation on the *Council* (see Table 6.3 in the appendix to this chapter), they have worked to promote their common interests, particularly in pushing through structural fund spending and support for certain agricultural products.[45] An alliance of

[40]See Table 6.3 in the appendix to this chapter for changes of the distribution of votes after each enlargement round and for the planned distribution of votes after new members have been admitted.

[41]The *Single European Act* (signed 1986), which inaugurated the programme to complete the Union's internal market, already extended the number of issues for which qualified majority voting instead of unanimity is required, especially on measures necessary to complete the common market in 1992 (European Commission (2002d)).

[42]Decision-making in the European Union was already complicate with just six member states. Under the *Treaty of Rome,* most decisions required a qualified majority after 1965. However, France refused to give up its veto power and boycotted meetings of the *Council of Ministers* for six months. In the beginning of 1966, the members agreed to a compromise (so-called Luxembourg compromise) giving veto power to each member state if "very important interests" for a certain country were concerned (Leonard (1998)).

[43]Provisions on taxation, e.g., continue to be subject to unanimity. In the area of cohesion policy, there will be a move to qualified majority only in 2007 after the adoption of a "multi-annual financial perspective" plan (European Commission (2002d)).

[44]The threshold will be successively increased to a maximum of 73.4%.

[45]For example, the Mediterranean countries (Italy, Portugal and Spain) became a blocking minority after the second enlargement.

new member states from the east might also arise[46] due to similar interests they share, in particular because of their lower income levels and dominant agrarian sectors.[47]

In summary, there are doubts about the successes in preparing the Union for the accession of up to 12 new countries. The decision-making process probably becomes more complicated after the *Treaty of Nice* has been implemented. Overall, there is a danger that the EU will lose functionality with 27 members.

2.3.4 Budgetary costs of enlargement

Budgetary implications are another key issue in the enlargement process. As noted, EU spending policy is dominated by agriculture and structural spending (Eurostat (2001)) and applicant countries are underdeveloped and heavily reliant on agriculture.[48] Thus, providing the new member states with equal eligibility to receive transfers would either require redistribution of resources from today's recipients or a large increase of the EU budget.

At the European Council meeting in Berlin in 1999, the member states agreed on the EU financial framework for 2000-2006 with the objectives of maintaining budgetary discipline[49] and preparing for EU enlargement. Adjusting the financial framework to the latest developments,[50] the European Commission presented a proposal on integrating new members into the CAP[51] and the structural fund (European Commission (2002b)). Almost all CEEC regions would qualify for structural funds if the current criteria on regional aid are applied.[52] To avoid huge transfers, the Commission proposed partial integration of the new states and limiting total annual structural transfers to 4% of national GDP until 2006.[53] Even then, eastern enlarge-

[46]With the inclusion of twelve new member states, the eastern European countries would have blocking power with 101 votes.

[47]Baldwin et al. (2001) introduce a more sophisticated measure that shows that the "passage probability" (likelihood that a randomly selected issue would pass the *Council of Ministers*) dropped from 14.7% (EU9) to 9.8% (EU12). It would decrease from 7.8% (EU15) to just 2.1% in a 27-member EU.

[48]Regions with GDP per capita below 75% of the EU average receive transfers (*Objective 1* regions). Such spending accounts for two-thirds of all structural expenditures. Agricultural spending is related to the percentage of people working in agriculture (European Commission (2000)).

[49]Financial discipline is mirrored in a fixed resource ceiling of 1.27% of EU GDP.

[50]The Berlin framework envisaged the possibility of six new members in 2002, but saw as more likely the addition of up to ten new members in 2004.

[51]Discussed above in Section 2.3.1.

[52]GDP per capita in almost all CEE regions is below 75% of the EU average.

[53]Per capita transfers for structural expenditure for new members would be 137 Euro per

ment poses a separate problem. Some current member states will lose their *Objective 1* status simply because the average EU per capita income will be lower once poor CEECs are included, so up to the end of 2006, at least, all current *Objective 1* regions will be allowed to keep their status.

We can only speculate on how new members might try to influence the EU budget. The experience of southern enlargement teaches that new entrants quickly learn to use EU transfer mechanisms for their own benefit. Indeed, CAP and structural spending considerably increased after the second enlargement (see Figure 6.10 in the appendix to this chapter).[54] We can therefore assume new member states will use their voting power to affect financial transfers and, as noted, poor countries will seek to enforce their interests and influence budgetary decisions.[55]

Like their southern European predecessors, the new entrants will presumably be net recipients of EU transfers. Analogies can be made with their likely efforts at influencing structural and agricultural spending, as well as transitional arrangements concerning their financial obligations[56] to the EU budget. However, spending for agricultural purposes and for structurally lagging regions were much lower at the time the southern countries joined the Union.[57] It is therefore questionable whether the new members will be able to significantly increase the EU budget after 2006. In any case, the entry of the new countries from eastern Europe will sharply increase competition for EU transfers.

capita (about 2.5% of total GDP of the new members) in comparison to an average of 231 Euro for the four cohesion countries (Greece, Ireland, Portugal and Spain). This represents 1.6% of total GDP of the four cohesion countries (European Commission (2002b)).

[54]Kandogan (2000) shows that voting power of a country and its share of EU members' receipts are significantly and positively correlated.

[55]Decisions on cohesion policy are subject to unanimity until the adoption of a new financial framework in 2007. Thus, all new members will have *de facto* veto power immediately after their accessions (probably in 2004 or 2005).

[56]Greece, Portugal and Spain were granted a reduction in their VAT payments (Leonard (1998)).

[57]However, budgetary problems already emerged in the early 1980s when the UK had to make disproportionately large contributions to the EU budget and high CAP spending threatened the EU budget. The problems were settled by granting allowances to the UK, which in return agreed on increasing the VAT contributions from 1% to 1.4%. Another budgetary crisis arose with the entrance of Portugal and Spain because the EU faced a budget deficit for 1987. Under the "Delors package," the budget limit was set to 1.2% of GDP, VAT contributions increased to 1.9-2.0% and structural funds were set to double by 1993 (Leonard (1998)).

2.4 Convergence through membership?

All countries in central and eastern Europe suffered dramatic declines in economic activity at the start of transition (see Figure 6.11 in the appendix to this chapter).[58] As of 2000, only Hungary, Poland, Slovakia and Slovenia had surpassed their 1989 GDP levels in real terms. Nevertheless, in both 2000 and 2001, CEECs had an average growth rate that exceeded the EU15 average.[59]

Will CEEC growth rates be high enough to eventually catch up with EU member states? What can be expected from their integration into a large single market which has the potential to open new trade opportunities and improve investment conditions? Figure 6.12 in the appendix to this chapter reveals Portugal and Spain have been successful in moving to the EU average, while Greece only recently began to catch up.

The reasons for Greece's poor performance in relation to Iberian countries are multifaceted,[60,61] but the variation in economic growth rates can be linked to the extent to which market economic reforms and market-supporting institutions were implemented. Greece was reluctant to implement economic reforms and liberalise its economy. It even abandoned some reforms. Greece's state-owned sector grew in the aftermath of accession, its weak industries were heavily subsidised and the economic structure remained unchanged. Instead, Greece rather shifted back to old industries (Preston (1997)) and competitiveness of Greek industry declined after 1981 (Arghyrou (2000)). The two Iberian countries, in contrast, promoted development of market mechanisms on a large scale, for instance, by reducing subsidies to loss-making firms. They eventually succeeded in redeploying production to industries with comparative advantages (Larre and Torres (1991)).[62]

[58]This development is called a "transformation recession". A multitude of explanations have been put forward focusing on demand-side factors such as the collapse of the Soviet Union and the breakdown of trade within the Council of Mutual Economic Assistance (CMEA), as well as supply-side arguments relating to disorganisation effects (see e.g. Roland (2000)).

[59]The average growth rates of real GDP in CEECs were 4.0% in 2000 and 2.2% in 2001 (not including Bulgaria and Romania) (EBRD (2001)) compared to an average growth rate in the EU15 of 3.3% in 2000 (Eurostat (2002b)) and 1.5% in 2001 (Eurostat (2002a)).

[60]Generally, theoretical explanations for economic growth are numerous. Neoclassical growth models ascribe growth to the expansion of capital and labour, augmented by technological progress. Endogenous growth theory adds factors such as R&D and imperfect competition to explain growth. Olson (1996) argues that institutions and economic policies are essential for economic performance.

[61]For a thorough discussion, see e.g. Larre and Torres (1991).

[62]Despite achievements in economic reform, Portugal and Spain still face major challenges, e.g. relaxing labour market rigidities (see OECD (1999) and OECD (2001c)).

Economic development is also shaped by EU transfers to new member states, especially through structural fund spending intended to help poorer regions catch up with the rest of the EU. All southern European countries are still net recipients of EU structural funds.[63] Spain and Portugal have largely used their money to promote productivity and infrastructure improvements, while Greece has spent most of its money on supporting public enterprises and other rent-seeking industries (Bosworth and Kollintzas (2001)). Thus, EU transfers to Greece have only modestly encouraged economic growth,[64] and possibly provided perverse incentives by e.g. sheltering subsidised firms from competitive pressure.

According to neoclassical theory, the integration of poorer transition countries into the EU implies that foreign direct investment (FDI) will flow from rich to poor countries. Greece has not attracted significant inflows since joining the Union, while FDI inflows have increased for Portugal and Spain.[65] To date, overall investment inflows to CEEC have been relatively low[66] with large regional differences.[67] Accession may help attract FDI through positive expectations about future economic performance and as a guarantee of economic and political stability, but will not necessarily lead to higher FDI and will be directed to countries with a greater commitment to reform.

The opening up of borders between the EU and the acceding countries also offers new trade opportunities.[68] Indeed, during the period 1988-1995, exports increased strongly in Portugal and Spain, but not in Greece. Moreover, the export dynamics of Iberian countries were larger in the manufacturing sector than in the primary goods sectors. Greek exports, in contrast, grew stronger for primary products (Nagy (1999)). Trade between the EU and CEEC has increased strongly after the conclusion of association

[63] In 1988, these amounted to 0.5-2% of GDP for the respective southern countries (Larre and Torres (1991)).

[64] The inefficient use of those transfers is one reason infrastructure is still poorly developed in Greece (Bosworth and Kollintzas (2001)).

[65] Bosworth and Kollintzas (2001) compare pre- and post-accession inflows of FDI into Greece, Portugal and Spain. Greece experienced a decline of FDI inflows falling from an average level of about 1.5% of GDP p.a. (during the five years before accession) to an average of around 1.0% of GDP p.a. (the average for the years after accession). In Portugal and Spain, FDI increased from an average of about 1% of GDP p.a. during the five years before accession to over 2% of GDP p.a. in the first five years after accession.

[66] At the end of 1997, EU direct investors had only about 5% of their total FDI assets in accession countries (Eurostat (2000b)).

[67] For instance, Hungary received FDI inflows of $163 per capita, while Bulgaria received just $60 per capita (EBRD (1999)).

[68] Trade liberalisation has been gradual in southern countries. Greece, in particular, was reluctant to open up its economy and only began to dismantle its tariff barriers in 1986. A tax on imported goods remained in place until 1989 (Larre and Torres (1991)).

agreements[69] and the degree of integration is already high.[70] Therefore, the beneficial effects from integration might already be largely realised for industrial products. However, CEECs predominantly export low quality, low skill, labour-intensive products (European Commission (2001c)).

The experiences of Portugal and Spain suggest that membership in the EU can have growth-accelerating effects. In its first decade of Greece's membership, however, the country saw no performance gains.[71] Closing the gap with incumbents seems to depend most on progress in structural reform and institutional change. In Portugal and Spain, and now belatedly in Greece, reform has paid off. Basically, the possibility of EU membership acts incentive to make reforms, but convergence does not occur automatically.[72]

2.5 Conclusions

Geopolitical considerations and support for emerging democracies were the driving forces for admitting Greece, Portugal and Spain to the European Union in the 1980s. The EU's upcoming eastern enlargement will be largely motivated by similar political reasons. The countries in the southern group entered the EU far poorer than the EU average and CEECs will do the same. Both groups are relatively populous and agrarian.

The EU is qualitatively a different supernational structure from what it was 20 years ago. The southern countries entered a community of rich member states. CEECs will join a heterogenous EU with large income disparities. The EU is no longer merely a customs union, but a sophisticated Economic and Monetary Union, and the requirements for entrance have changed. The accessions of southern countries were subject to few rules; indeed, Greece's

[69] Also called *Europe Agreements,* these were signed by all candidate countries during 1991-1996 to establish a framework for bilateral relations between the EU and CEECs. The central agreements are the establishment of a free trade area for industrial goods, liberalisation of capital movements and approximation of laws relevant for the EU's internal market (European Commission (2001c)).

[70] In 1999, CEECs exported about 64.8% of their total exports to the EU. They imported, on average, 58% of their total imports from the EU (European Commission (2001c)).

[71] Greece eventually got with the programme. In the early 1990s, Greece modified its economic policy to meet *Maastricht criteria.* Macroeconomic balance, culminating in admission to the euro, and progress in economic reforms were eventually achieved. During 1996-2000, Greece's GDP growth exceeded the euro-area average (Bosworth and Kollintzas (2001), OECD (2001a)).

[72] Several studies evaluate welfare and macroeconomic effects of EU enlargement (e.g. Breuss (2001), Baldwin et al. (1997), European Commission (2001b)). All of these studies reach the conclusion that both CEECs and the European Union gain from enlargement. However, gains for CEECs will be much larger than for the Union.

EU entry did not even involve adoption of the *Single European Act* as was mandated for Portugal and Spain. All new entrants must meet the vastly tougher *Copenhagen criteria* and implement the entire *acquis communautaire*.

Countries in both groups had to wait a long time before obtaining full membership. For the southern EU countries, the preparation of the opinion of the EU about an applicant country, the decision to open negotiations and the negotiation took almost six years (Preston (1997)). For the CEECs, the end of negotiations and the date for accession have yet to be announced by the European Commission. First-wave countries could join as early as 2004, but overall, eastern enlargement will take six or seven years as well.

Parallels between southern countries and CEECs can be drawn from the EU's own efforts at dealing with enlargement. The thornier issues in enlargement negotiations are typically unresolved until the very end of negotiations – or even put off until after countries have become members. As in the second enlargement round, long transition periods in the integration process seem likely in eastern enlargement to allow time for e.g. closing the price gap of certain agrarian products and to absorb migration flows. Southern EU enlargement transition periods lasted as long as ten years.[73]

Overall, both southern and eastern enlargement highlight the weaknesses of the Union's functioning. Although the EU strongly needed to make reforms to cope with the second enlargement,[74] major reforms were not undertaken until after Greece, Portugal and Spain entered the Union. Today, we can already foresee that the larger number of countries in the decision-making institutions will make reform more difficult. Instead of postponing reforms, EU leaders should recall the lessons of the second enlargement and use the upcoming enlargement as an opportunity to move ahead with reforms before the accession of new members.

[73] In Spain's case, for instance, the limitations on fishing rights were still in place in 1994 (Richter (1995)).

[74] Duchêne (1982, p. 40) remarks, "The crisis of the Community is likely to become the central issue of the southern enlargement and not, ..., the other way around."

Chapter 3

On the Causes of Soft Budget Constraints: Firm-level Evidence from Bulgaria and Romania

3.1 Introduction

The transition towards market-based economies in central and eastern Europe offers a natural experiment for testing the widely held view in economics that competition and private ownership contribute to improved economic performance. Indeed, there is now a vast body of empirical literature examining firm performance in terms of ownership structure and degree of competition. The consensus conclusion is that private companies perform better than state companies, though not necessarily in the case of private firms that were previously state-owned or featured insider-privatisation (Boardman and Vining (1989), Konings (1997), Blanchard (1997), Frydman et al. (1999)), and that firms in more competitive industries also tend to perform better (Nickell (1996), Konings (1997), Brown and Earle (2000)).

This chapter takes up the question whether product-market competition and ownership structure can explain the prevalence of soft budget constraints. The concept of soft budget constraints (SBCs) was introduced by Kornai (1980) and refers to a situation where loss-making firms are bailed out or refinanced. In Kornai's (1980) view, bail-outs of loss-making firms reflect a paternalistic government attitude. The government wants to preserve employment and the survival of firms even when they incur losses. Closely related to the paternalistic explanation of SBCs are political economy mod-

els of SBCs. Shleifer and Vishny (1994) argue that the political influence of entrepreneurs automatically gives rise to bribes and subsidies. Alternatively, Dewatripont and Maskin (1995) explain the existence of SBCs as the outcome of a commitment problem in the presence of sunk costs. In contrast to Kornai's (1980) assumption that the paternalistic state attitude is an exogenous given, Dewatripont and Maskin (1995) provide an endogenous explanation for SBCs. In their model, institutional conditions such as state ownership, centralisation of credit and a lack of competition increase the probability of SBCs. Along similar lines, Segal (1998) argues that a lack of competition promotes SBCs.

The purpose of this chapter is to empirically test for the various causes of SBCs suggested in the theoretical literature. Do privately-owned firms and firms in more competitive industries suffer less from SBCs? To what extent can sociopolitical motives such as employment account for the incidence of SBCs? To date, the empirical work on SBCs has remained modest. Schaffer (1998) assesses the importance of the different forms of SBCs, arguing that tax arrears are the main channel through which the government continues to support its firms. Other documentary evidence on SBCs comes from the EBRD (1999) and the World Bank (1999), stressing the importance of non-collected bills from state utility suppliers. Clifton and Khan (1993) discuss inter-enterprise arrears in Romania. The bulk of empirical work on SBCs, however, focuses on the effects of SBCs in explaining firm or macro-economic performance in central and eastern European countries.[1] This chapter, on the other hand, tries to explain the prevalence of SBCs themselves. In this respect, our work bears some resemblance to that of Li and Liang (1998), who test SBC theories in a Chinese context.

In attempting to explain the presence of SBCs, we use an unbalanced panel data set consisting of company account data for Bulgarian and Romanian manufacturing firms covering the period 1995-1999. Bulgaria and Romania are typically slow reformers (EBRD (2000)). This makes them more likely to be prone to SBCs and makes them more suitable for testing theories on SBCs. Moreover, both countries experienced arrears crises. In Bulgaria, a run-up of soft bank credit and non-performing loans formed the basis of the 1996 banking crisis. In Romania, firms repeatedly stopped paying each other, gambling on a collective bail-out (Clifton and Khan (1993), Berglöf and Roland (1998), Perotti (1998)). These experiences illustrate that the main source and manifestation of SBCs was different in each country. Our

[1]For example, Earle and Estrin (1997), Dobrinsky et al. (1997), Konings and Vandenbussche (2000), Majumdar (1998), Bertero and Rondi (2000), Raiser (1993), Raiser (1994).

SBC variable will be accommodated to capture both sources of SBCs. More specifically, we use a logit approach where a dummy variable, indicating the presence of SBCs, acts as the dependent variable. The latter variable is based on a measure for bank-related SBCs as suggested by Schaffer (1998). In addition, we propose an alternative SBC measure capturing inter-enterprise arrears.

Our results suggest that the probability of finding SBCs importantly depends on the degree of competition within the sector, as well as on the ownership structure of the firm. Ownership structure in Bulgaria, however, has no additional explanatory power once firms are loss-making. We further find that sociopolitical concerns about employment increase the probability of SBCs, but only when firms are loss-making. Thus, our results confirm, as suggested by the theoretical models on the causes of SBCs, the hypotheses that competition, privatisation, and firm size matter in explaining SBCs.

A number of papers have explicitly addressed the issue of the adverse effects of SBCs, both on theoretical and on empirical grounds. In Kornai's (1980) framework SBCs are the causes of permanent shortages in socialist economies. Moreover, SBCs are believed to hamper innovation (Qian and Xu (1998)), the restructuring of firms and an efficient resource allocation (Kornai (1980), Dewatripont and Roland (1996)), output (Schaffer (1998)), economic growth (Huang and Xu (1999)) and free trade (Everaert and Vandenbussche (2001)). Consequently, the hardening of SBCs is at the heart of the reform process in central and eastern Europe and therefore of primary concern to policymakers. Moreover, our conclusions should draw the attention of policymakers to the importance of raising competitive pressure in transition economies and seeing through their privatisation programmes to reduce the prevalence of SBCs.

This chapter is structured as follows. In Section 3.2 we sketch out the theoretical framework for testing SBC theories and formulate the hypotheses to test. Section 3.3 describes the variables and data set we use and gives some descriptive statistics. Empirical results are presented in Section 3.4. A discussion of the results can be found in Section 3.5. A final section comments and concludes.

3.2 Theoretical background

In this section, we outline a theoretical framework for testing SBC theories. As the relevant theoretical literature has recently been summarised by Maskin and Xu (2001), we concentrate instead on major themes that can be distilled from this literature. More specifically, we group the theoretical

predictions from this literature into three main categories and translate these into hypotheses that will be tested in Section 3.4 of this chapter.

First, we expect firms with higher levels of employment to be more likely to benefit from SBCs. Sociopolitical motives such as preservation of jobs or maximising employment and output usually support the idea that in socialist countries firms tend to be bailed out rather than allowed to go bankrupt. This reflects managerial incentives under socialism[2] and the paternalistic attitude of the state in these countries (Kornai (1979)).

A second hypothesis is that decentralisation helps establish harder budget constraints. This is clearly illustrated in the model of Dewatripont and Maskin (1995), who give an endogenous explanation of SBCs. In their model, bad investment decisions are made because of creditors' lack of information about the quality of the project and due to a lack of commitment on the creditors' side not to refinance bad projects once an irreversible investment has been made. Consequently, solving the asymmetric information problem and the commitment problem not to bail-out bad projects are at the heart of hardening SBCs in such models. These problems are remedied with decentralisation, i.e. making the market more transparent[3] and more competitive. More specifically, Dewatripont and Maskin (1995) argue that, if refinancing takes place in a competitive credit market with a large number of small creditors - as compared to when refinancing is done by the same monopolist creditor - the likelihood of a bail-out is smaller, given the fact that small creditors face liquidity constraints which makes ex-post renegotiation of credit more difficult. Anticipating these difficulties, bad investment decisions are avoided and the bail-out issue becomes superfluous. In other words, competition among creditors hardens the budget constraints.

Dewatripont and Roland (1996) consider the case where a single creditor needs to finance a multitude of projects. Now, competition on the producers' side decreases the probability of a bail-out such that fewer bad investments are made. Again, budget constraints are harder under competitive pressure.

A similar effect of competition through trade linkages is illustrated by Berglöf and Roland (1998). When strong one-to-one relations between suppliers and buyers exist, liquidation of one loss-making firm (i.e. when it is not bailed out) will be very costly, given the negative spillover effects to

[2]Note that the expectation of a future government bail-out will precisely distort incentives and make firms more prone to run losses. Hence, the bail-out expectation can become a self-fulfilling prophesy.

[3]We do not explicitly address the asymmetric information problem in this chapter. Theoretical work on solving asymmetric information effects of SBCs through screening is discussed by Bai and Wang (1998). Models were effort is monitored are suggested by Qian and Roland (1998).

the firm's trading partners. Consequently, increased competition weakens these negative spillover effects, makes the liquidation option more credible and hardens budget constraints. Competition also works through competition between old and new projects, as in Berglöf and Roland (1998), or via competition for funds among regional governments as explained by Qian and Roland (1998) for China. In a different setting, Segal (1998) likewise demonstrates the importance of competition in the hardening of budget constraints. When the market is serviced by a sufficient number of firms, other firms can make up for the output loss following the liquidation of a defaulting firm. This makes the social cost of liquidation smaller and the liquidation itself is a more feasible option.

Notably, nearly all authors suggest several ways in which competition might contribute to harden budget constraints. In all cases, the driving mechanism is that the likelihood of a future bail-out decreases under competition.

The model of Dewatripont and Maskin (1995) also illustrates the effects of privatisation. Privatisation can harden budget constraints in two different ways. Firstly, bad projects are more easily restructured into good projects after privatisation, since private investors usually have better access to capital to buy new equipment and since they can more easily oppose or appease opposition from workers to restructuring (Blanchard (1997)), rendering bail-out superfluous. Secondly, privatisation changes the conditions under which a bail-out of a bad project occurs. This can be seen as follows. When the creditor is a private profit maximising agent, instead of a welfare maximising government, his objective function is less comprehensive. In particular, a profit maximising creditor will discard the payoff to the entrepreneur in his own utility function whereas in case a welfare maximising government makes credit decisions, it will include both terms in its objective function.[4] Therefore, the payoff from refinancing a bad investment project will less likely exceed the value of liquidation, making the latter option more attractive. Hence, private ownership reduces bad investments and hardens budget constraints. Along similar lines, one could argue that profit maximisation

[4]The extent to which the pay-off of the entrepreneur reflects his concerns about employment in the firm, Dewatripont and Maskin (1995) predict that bail-outs will less likely occur to preserve employment when the credit market is privatised. Thus, sociopolitical concerns might be different under different types of ownership. This links it back with our first hypothesis. However, if the entrepreneur only cares about his personal prestige or his private benefits related to the operation of his firm, the employment issue can be treated separately from the privatisation hypothesis. To allow for an explicit test on this view, the preferred specification in the econometric analysis is to treat the issues of ownership and firm size separately and to test for interaction effects (Section 3.4).

incentives and incentives to restructure are even stronger for foreign-owned firms in central and eastern Europe or that insider privatisation will be less effective in disciplining firms as compared to domestic private ownership (Blanchard (1997)).[5]

In Section 3.4, we will test whether indeed firm size, competition and privatisation can explain the incidence of soft budget constraints among firms, as predicted in the theoretical literature. We however first turn to a description of the data set in Section 3.3.

3.3 Data description

To test the aforementioned theories on SBCs, we use an unbalanced panel data set of company data from Bulgarian and Romanian manufacturing firms[6], covering the period 1995-1999. Bulgaria and Romania could be considered laggards in transition when compared to more advanced CEECs such as Poland or Hungary. This can be seen e.g. from enterprise restructuring and banking reform indices in Table 3.1.[7] Moreover, privatisation in Bulgaria and Romania only took off in the second half of the 1990s, so these countries are more likely to be characterised by SBCs. Finally, the choice of Bulgaria and Romania allows us to compare results from testing SBC theories in both a small, open economy and in a larger, relatively closed economy.

The firm-level data are taken from AMADEUS CD-ROMs, distributed by the Bureau Van Dijk, Belgium. Data are restricted to large and medium sized firms, i.e. firms that are either characterised by an employment level exceeding 100 or which have total assets and total sales exceeding US$12 million.[8] Our sample consists of 1536 Bulgarian and 2293 Romanian firms.

[5]From a theoretical perspective, insider privatisation could be compatible with hard budget constraint incentives and incentives to restructure. First, insiders do have incentives to generate profits and to buy new capital equipment. However, retained profits are likely to be insufficient and outside finance limited or non-existent in transition countries. Secondly, workers may accept restructuring even if it comes at the expense of their job loss provided they are sufficiently compensated as shareholders. In transition economies, this is unlikely to be the case. Moreover, if future profits are distributed as higher wages, no gain is obtained as shareholders. The empirical literature for transition economies also consistently reports inferior performance of insider-owned firms, compared to domestic or foreign outsider-owned firms (Blanchard (1997), Frydman et al. (1999), Roland (2000)).

[6]Manufacturing was the principal activity of these firms throughout the sample period.

[7]A higher value for the indices stands for further progress towards market-based economy practices. The highest possible index value in both categories is 4.3.

[8]AMADEUS is a commercial and Pan-European database, available on CD-ROM, created and distributed by the Bureau Van Dijk. The Bureau Van Dijk is a listed company on the Euronext stock exchange. The data are collected by local information providers

	Bulgaria	Czech Rep.	Hungary	Poland	Romania
enterprise reform index	2.3	3.0	3.3	3.0	2.0
banking reform index	2.7	3.3	4.0	3.3	2.7
small-scale privatisation	3.3	4.3	4.3	4.3	3.7
large-scale privatisation	3.0	4.0	4.0	3.3	2.7

Source: EBRD (1999), Transition Report

Table 3.1: Reform indices in Central and Eastern European countries

Firm-level employment figures are used to test the first hypothesis that firm size increases the likelihood of SBCs. Descriptive statistics are presented in Table 3.2. Both countries experienced a decline over time in average firm size. However, initial conditions at the start of transition were rather different, with Romanian firms being much larger than Bulgarian enterprises. This legacy is reflected in the data.

	Bulgaria			Romania		
year	median	mean	st. dev.	median	mean	st. dev.
1995	224	428	843	439	893	1755
1996	197	390	792	383	797	1591
1997	184	362	739	340	745	1493
1998	174	341	699	310	636	1249
1999	154	307	617	272	564	1085

Source: own calculations using AMADEUS Data

Table 3.2: Size of firms: Number of employees

To test the second hypothesis that competition makes SBCs less likely to occur, we need data on the degree of competition. For that reason we include Herfindahl indices and import penetration on the 3-digit NACE level.[9] The Herfindahl index is calculated as the sum of squares of market shares of all firms in the relevant industry and ranges between 0 and 100. A high value for the Herfindahl index corresponds to high industry concentration in the sector. The import penetration ratio is measured as total imports over the sum of total sales and imports in the sector, and also ranges between 0 and 100. Sectors that face fierce competition from abroad will consequently feature a high import penetration ratio. Thus, these indices reflect the overall

(Creditreform Bulgaria OOD and the Romanian Chamber of Industry and Commerce) and the Bureau Van Dijk makes them consistent across countries. Small firms are excluded.

[9]We match the Herfindahl index and import penetration according to the principal activity reported by the firm.

degree of domestic and foreign competitive pressure within the sector. Data were obtained from the Statistical Offices of Bulgaria and Romania for the period 1994-1998, such that we use lagged values of these variables in our regressions. Descriptive statistics on Herfindahl indices and import penetration ratios are presented in Tables 3.3 and 3.4. The overall drop in industry concentration and the general upward trend in import penetration reflect the process of reform in both countries. The fact that import penetration is on average higher in Bulgaria is consistent with our claim that the Bulgarian economy is more open and Romania more closed. The difference between Bulgaria and Romania is even more pronounced for the concentration index in Table 3.3. Many huge conglomerates in Bulgaria were split up following the Demonopolisation Act of 1992. This led to an important reduction in concentration ratios (Djankov and Hoekman (2000)). However, firms were often split up in complementary parts, such that lower levels of concentration did not necessarily reflect an increase in product-market competition. For this reason and following Nickell (1996), we use first differences of the indices in the econometric analysis as they better reflect actual changes in competition patterns. However, the sector-level changes in Romania for the concentration ratios are very small, so in that case we use the levels for both variables.

	Bulgaria			Romania		
year	median	mean	st.dev.	median	mean	st.dev.
1994	20.56	30.71	27.66	27.41	61.06	27.97
1995	16.37	27.07	26.13	22.57	57.90	27.77
1996	16.45	27.60	28.51	27.86	56.46	28.52
1997	16.52	25.28	24.96	23.36	53.07	28.29
1998	14.78	20.22	18.76	21.74	50.92	28.91

Sources: Statistical Offices of Bulgaria and Romania, own calculations

Table 3.3: Concentration of manufacturing firms in Bulgaria and Romania: Herfindahl indices

The AMADEUS data also allowed us to trace down the ownership structure of the firms for the years 1997-1999. The ownership structure for the preceding years was unavailable and therefore we assume it to be the same as the ownership structure for 1997 in our regressions.[10] Ownership information, given in AMADEUS, includes the name and nationality of the owner and his direct ownership share. We could hence distinguish various owner-

[10]The assumption does not change our results (see Section 3.5).

	Bulgaria			Romania		
year	median	mean	st.dev.	median	mean	st.dev.
1994	32.40	37.81	27.60	14.06	25.80	28.97
1995	33.82	37.77	27.96	14.76	30.05	24.54
1996	31.17	39.12	27.65	19.48	32.43	26.61
1997	34.38	40.37	28.87	21.25	30.49	24.63
1998	39.60	42.85	29.76	26.93	36.66	28.96

Sources:. Statistical Offices of Bulgaria and Romania, own calculations

Table 3.4: Import penetration of manufacturing industries in Bulgaria and Romania

ship categories - state, municipalities[11], foreign investors, private investors and insider-owned companies or cooperatives - and we could construct dummies for the various owners involved,[12] dummies for full, majority or minority ownership[13] or for various forms of mixed ownership. Table 3.5 shows the percentage of firms in our sample in which the listed owner held majority stakes.

As can be seen from Table 3.5, state-ownership is still important in Bulgaria and Romania, even though it is on the downward trend, whereas private and foreign ownership are of increasing importance in our sample.[14] There are also an important number of insider-privatised firms[15]. This information on ownership will allow us to test whether our third hypothesis (privatisation hardens budget discipline) holds.

Obviously, ownership information is sometimes incomplete, and the indices we use on competitive forces serve only as a proxy. Our data do not e.g. allow us to distinguish between *de novo* firms, thereby leaving the theory of Berglöf and Roland (1998) on competition between new and old firms outside the scope of our analysis. Neither can we assess the extent of competition on the creditor's side (Dewatripont and Roland (1996)) nor the strength of trade linkages between buyers and suppliers (Berglöf and Roland (1998)). Competition in foreign export markets may be an additional source of com-

[11]Ownership for municipalities was only available for Bulgaria.

[12]The dummy reports whether a certain owner category has a stake in the firm, irrespective of the importance of its ownership share.

[13]A firm is said to be majority-owned when one ownership category has a stake of more than 50%. For minority ownership, an owner needs to own at least 33%.

[14]Since there were only a few mass-privatised firms in Romania, we considered them together with privately owned firms in the regressions.

[15]Insider-owned companies are often quite similar to cooperatives in our sample. Therefore, we consider these two categories together in the regressions for Bulgaria.

majorities	country	1997	1998	1999
state-owned	Bulgaria	26.1	16.2	15.9
	Romania	37.7	37.9	18.6
private-owned	Bulgaria	19.3	30.2	33.6
	Romania	41.2	40.6	50.6
foreign-owned	Bulgaria	5.2	8.4	8.3
	Romania	10.4	10.4	19.4
insiders/coop	Bulgaria	6.5	5.3	5.2
	Romania	2.6	2.7	2.7
municipalities	Bulgaria	2.4	2.4	2.2
	Romania	n.a.	n.a.	n.a.
not majority	Bulgaria	40.5	37.5	34.8
owned	Romania	8.1	8.4	8.7

Source: own calculations using AMADEUS Data

Table 3.5: Ownership structure: Percentage of firms in which the named owner has the majority

petitive and disciplining pressure, but this information is lacking in our data set. Nonetheless, we believe that our data on ownership are sufficiently representative and that the indices on concentration and import penetration give a good overall indication of domestic and foreign competitive pressure and can be used as such in the econometric analysis.

The dependent variable in our analysis is a measure for SBCs. SBCs can take various forms: tax arrears, inter-enterprise arrears, non-payment of bills from state utility suppliers, and soft bank credit. Our data allow us to identify both SBCs that are due to inter-enterprise arrears and SBCs that originate from the banking sector. For the latter, we use a measure of SBCs based on Schaffer (1998). A firm is said to have net-bank financing SBCs (NSBCs) when it receives net bank financing (NBF) despite negative profitability. NBF is defined as the net increase in outstanding debts[16] over total assets and multiplied by one hundred:

[16]We include both short-term liabilities and long-term debt in our measure of debt. Unlike Schaffer (1998), we do not subtract interest paid as the non-payment of interest on existing debt already shows the presence of bank arrears. Moreover, data on interest paid were of such poor quality that it would have significantly reduced the number of observations in our sample. Note that short-term liabilities might also include items unrelated to bank finance such as wage arrears, and debts to tax administration or to state utility suppliers. Hence, our NSBC measure should not be narrowly interpreted.

$$NBF_t = \frac{debt_t - debt_{t-1}}{total\ assets_t} * 100$$

Our measure for NSBC thus takes the value 1 when NBF_t is positive and operating profit in year t is negative; it is 0 otherwise.[17,18] Consequently, this measure reflects which firms "undeservedly" obtain extra credit. In Figures 6.13 and 6.14 in the appendix to this chapter, NSBC firms are located in the upper-left side of the diagram.

SBCs also appear in the form of inter-enterprise arrears[19] (Clifton and Khan (1993), Perotti (1998)). Therefore, we attempt to identify firms that benefit from unacceptably generous credit margins, reflecting their inability to pay. Along these lines, we now define a variable for credit-related SBCs (CSBCs) that takes on the value 1 when the firm is loss-making in year t and benefits from a credit period that is larger than the average credit period firms with positive profits in year t enjoy. The variable is 0 otherwise.

		Bulgaria		Romania	
year	operating profit/loss	mean	st.dev.	mean	st.dev.
1995	positive	26	48	45	54
	negative	48	95	79	116
1996	positive	43	79	42	50
	negative	53	83	105	154
1997	positive	31	47	41	48
	negative	50	69	96	134
1998	positive	24	33	45	55
	negative	45	71	99	122
1999	positive	31	48	45	51
	negative	54	94	85	104

Source: own calculations using AMADEUS Data

Table 3.6: Credit period in days

Table 3.6 clearly illustrates that firms with negative operating profits benefit from more credit days on average and that this credit period displays greater variation as reflected by the standard deviation. Thus, most of the

[17]We use "operating" profit and loss, since we want to identify the firms that are economically nonviable, irrespective of their financial structure.

[18]Here, we differ from Schaffer (1998) by considering the value of operating profit and loss in period t instead of in period $t-1$.

[19]Non-payment of bills from state utility suppliers is often reflected as a very high number of credit days, which we capture here.

credit to loss-making firms can be considered as involuntary as on average, profit-making firms are given less time to pay. This motivates the choice of our CSBC measure. Firms with inter-enterprise arrears, under our definition, are displayed at the upper-left in Figures 6.15 and 6.16 in the appendix to this chapter.

Looking at Table 3.7, we see that NSBCs have been more important in Bulgaria, whereas the relative importance of CSBCs has been greater in Romania. The column BSBC indicates the percentage of SBC firms, having either NSBCs or CSBCs, or both. The data on SBCs are well in line with Schaffer (1998) and Dmitrov (1999), who argue that inter-enterprise arrears were unimportant for Bulgaria,[20] unlike in Romania, where enterprises engaged in collusive arrears anticipating a general government bail-out. In Bulgaria, on the other hand, a weak banking sector made NSBCs widespread. In 1996, when the Bulgarian banking sector experienced a banking crisis, NSBCs dropped to 2% as bank financing dried up.[21] In the empirical part, we will use the variable BSBC, indicating the presence of SBCs of any type. Given the substantial number of firms that are both classified as having NSBCs and CSBCs, we are confident that we identified genuine SBC firms and that we can use this BSBCs measure in the econometric analysis as such.

	Bulgaria				Romania			
year	NSBC	CSBC	BSBC	IBSBC	NSBC	CSBC	BSBC	IBSBC
1995	21	13	21	21	4	6	8	7
1996	2	8	9	9	3	5	6	5
1997	13	10	17	12	2	6	7	6
1998	31	18	33	28	9	11	14	13
1999	30	20	36	32	5	12	13	13

NOTES: NSBC refers to net-bank-finance related SBCs, CSBC refers to inter-enterprise related SBCs and BSBC refers to SBCs . of any kind, as explained in the text. IBSBC refers to investment-corrected SBCs

Source: own calculations using AMADEUS-Data

Table 3.7: Firms with Soft Budget Constraints (in percent of firms in the whole sample)

We further considered a refined measure of SBCs, "investment-corrected" BSBCs (abbreviated IBSBCs), where we correct for the possibility that firms

[20]This holds prior to 1997 at least.

[21]The drop of NSBCs in Bulgaria in 1996 is not due to the number of firms having negative operating profit.

are engaged in deep restructuring[22] and need the financial resources to do so. Apart from using internal resources, obtaining extra bank financing is the most straightforward option given the fact that equity markets are virtually non-existent in these countries. Hence, firms we previously classified as NSBC firms, might be in the process of reorganising their business in the prospect of becoming profit-making in the future. We checked whether NSBC firms, which by definition have $NBF > 0$, also exhibited a positive real increase in tangible fixed assets[23]. In this case, we did not assume that the firm was subject to SBCs. Our refined variable for net-bank-finance related SBCs, INSBC, thus has fewer cases of SBCs, compared to the old NSBC measure. The variable for CSBCs remains unchanged. The variable IBSBC is constructed analogously, representing firms that have either INSBCs or CSBCs, or both.

3.4 Empirical results

As our dependent variable is discrete, we run regressions for explaining SBCs using a random effects logit approach.[24] We run regressions for the entire sample and for the sample, restricted to the firms with negative operating profit to distinguish between the performance aspect and the issue of softness in our dependent variable.[25] All regressions include year dummies to capture year-specific effects. Our reference regression features the following form:

[22]We refer here to strategic restructuring as opposed to defensive restructuring (Blanchard (1997)).

[23]Data on tangible fixed assets were equally available on a firm-level basis in AMADEUS.

[24]Including a fixed effects term could arguably better capture firm-specific characteristics that are constant over time. The estimation of fixed effects proceeds via conditional maximum likelihood and is based only on observations where the dependent variable changes status. This would lead to a substantial loss of information, especially since firms that repeatedly operate under SBCs resp. hard budget constraints are among the most informative in our sample, i.e. essentially, our analysis is a cross-sectional one. We ran tests to check the accuracy of the estimation by increasing the number of quadrature points used in the approximation. However, all coefficients were sufficiently stable within conventional levels. Only the coefficient on employment was relatively unstable at 8 quadrature points in the unrestricted sample for both countries. Increasing the number of quadrature points added to the stability of the coefficients, but without change in their size. Results reported refer to the case when 12 quadrature points are used.

[25]One can argue, given our definition of SBCs, that SBCs could be a proxy for poorly performing firms. The explanatory variables in our regressions would thus explain the performance, instead of the identity, of firms with negative operating profit, which operate under SBCs.

$$\begin{aligned} BSBC_{i,t} = \quad & \alpha + \beta_1 herfindahl_{i,t-1} + \beta_2 import_{i,t-1} + \beta_3 empl_{i,t} \\ & + \beta_4 state_{i,t} + \beta_5 foreign_{i,t} + \beta_6 municip_{i,t} \\ & + \beta_7 coopinsider_{i,t} + \sum_{t=2}^{T} year_t + u_i + \epsilon_{i,t} \end{aligned}$$

where $\epsilon_{i,t}$ is the white-noise disturbance and u_i is the disturbance term accompanying the random effects term.

In Tables 6.4 and 6.5 in the appendix to this chapter we report the results for Bulgaria and Romania respectively when the entire sample was considered, and when the sample was restricted to loss-making firms only. To stress the impact of privatisation, we add information on ownership status in columns (2) and (4-5) for both countries and both sample cases.[26]

Regression (1) in Tables 6.4 and 6.5 only takes into account competition variables and the level of employment within the firm. Competition ratios are included as percentages in the regressions. For both countries, the Herfindahl index is positive, indicating that more concentration within the sector increases the likelihood of SBCs. This coefficient is significant for Romania but not for Bulgaria. The coefficient for import penetration has the expected sign, i.e. increased import competition is associated with tougher budget discipline. Its significance, however, is low.[27] The coefficient for the level of employment has a negative sign, and, contrary to Kornai's (1980) hypothesis, is even significant for Romania. This can be explained by the significant number of large firms with positive profit in our sample. As will be discussed below, however, this result is not robust for Bulgaria, nor for Romania in the restricted sample.[28] The big negative coefficient on the 1996 year dummy for Bulgaria reflects the drop in SBCs due to the banking crisis. In both countries, however, SBCs increase over time.

When the ownership structure is added to the regressions, as in columns (2) of Tables 6.4 and 6.5, the sign and significance of the variables remain largely unchanged. Now, the Herfindahl index becomes significant for Bulgaria, as does import penetration for Romania. The results on ownership refer to the case when dummies for majority ownership are included. We also experimented with dummies for full and minority ownership, or dummies for the presence of any ownership category. However, the results continue to hold in those regressions. Compared to the case of private ownership, which

[26]The number of observations in our sample slightly drops because Herfindahl indices and import penetration indices were unavailable for some sectors and because ownership information for some firms was unavailable.

[27]Note, however, that for Romania, the coefficient on import penetration is almost significant at a 10% level.

[28]Notice that the stability of the coefficient of employment in the unrestricted sample was unstable when estimated with 8 quadrature points.

is our benchmark case[29], the presence of state ownership increases the incidence of SBCs significantly in both countries. For Bulgaria, all other ownership variables also bear the expected sign: foreign participation decreases the probability of SBCs, whereas insider-owned firms and municipalities increase this probability, even though these coefficients are not significant.[30] The case of Romania is somewhat more puzzling: insider and foreign ownership both have an unexpected sign and are statistically significant. Insider-owned firms in Romania mostly report positive profits in our sample. Hence, they bear a negative coefficient. The involvement of the state in most foreign majority-owned companies is responsible for this result, as will become clear below.

The remaining columns in Tables 6.4 and 6.5 report analogous results when the sample, restricted to loss-making firms, is considered. Here, we test whether the variables we selected to explain the incidence of SBCs, can distinguish between firms with SBCs and firms with hard budget constraints, even when all firms in the sample are loss-making. As can be seen in columns (3) and (4) of Tables 6.4 and 6.5, the results for the competition variables are now strengthened: the coefficient on the Herfindahl index is always positive and statistically significant and import penetration is always negative. Moreover, the coefficient on employment now consistently bears the hypothesised positive sign, most of the times being significant. Thus, firm size does matter in explaining SBCs, but only when firms are loss-making. The story is somewhat the opposite for ownership variables. Ownership information, however, does not contribute towards explaining SBCs, once firms are loss-making, especially not so in Bulgaria. For Romania, the results are more in line with the results from the unrestricted sample when purely state-owned and purely foreign-owned companies are considered. The former have a positive significant effect on SBCs, the latter make the coefficient and significance level for foreign ownership considerably smaller, and thus in line with theoretical predictions. However, purely state-owned or purely foreign owned firms make up only a very small part of the majority-owned firms and the conclusions are thus not representative for the majority-owned sample as a whole. The

[29]The benchmark case also includes firms where no majority owner is present or where this information is incomplete. Given the fact that non-majority owned firms in Bulgaria make up a large part of the sample (Table 3.5), we also performed regressions where the case of diffuse ownership acts as our benchmark to separate it from the case of private majority ownership, which is then separately included in the regressions. However, the results continue to hold unchanged.

[30]The coefficient for municipalities ownership here is smaller than that of state ownership (and in line with the Tiebout competition hypothesis (Tiebout (1956))) as incorporated in the SBC literature by Qian and Roland (1998).

influence of the Romanian state in case of mixed ownership thus reaches farther than its quantitative share would suggest. Using dummies for purely state-owned or purely foreign-owned did not change the results for Bulgaria. Ownership structure in Bulgaria is thus more indicative of the performance of the firms, as the incentives to restructure, explained in Section 3.2, would suggest.

To test whether different owners have different sociopolitical objectives, we included an interaction term for majority state-ownership and employment. In none of the specifications, this term appeared significant. Big firms are thus equally perceived as "too big to fail", irrespective of whether they are privately owned or owned by the state.

The results, in line with the theoretical literature on SBCs, thus make a case for accepting that privatisation, competition and firm size matter in explaining the prevalence of SBCs in Bulgaria and Romania. State-ownership is usually associated with a higher incidence of SBCs. We do not consistently find, however, that foreign participation gives rise to fewer SBCs. Foreign investors might, e.g. enjoy more freedom to concentrate on strategic considerations - such as attracting qualified workers, establishing their firm reputation and brand name and capturing market share - instead of being profit maximising in the short run. Moreover, they usually have access to foreign equity markets such as that they do not need to rely on bank financing. Finally, the significance of the variables that explain SBCs in the restricted sample ensures that we are not taking up a performance effect, but that our SBC indicators can - within the sample of possibly SBC firms, i.e. firms with negative operating profit - distinguish between SBC firms and hard budget constraint firms.

3.5 Discussion of the results

The results presented in Section 3.4 are fairly robust, since they hold across countries considered, across sub-samples and irrespective of the measurement of the variables.

We further performed robustness checks for ownership structure, since we assumed that ownership prior to 1997 was the same as in 1997. This assumption is particularly strong for Bulgaria, since mass-privatisation occurred in 1996. However, we could identify the state-ownership share (100%) for the years prior to 1997 for those firms (Centre for Mass Privatisation Bulgaria (1996)). The results, however, remain unchanged. The same holds when using the sub-samples 1997-99 and 1998-99 for which the evolution of ownership structure is complete. The results are equally robust with respect to

the specification of the ownership dummies included, i.e. the results continue to hold when dummies on minority ownership are included or for dummies simply indicating the presence of an ownership category irrespective of the quantitative importance of the ownership share.

We further experimented with taking logarithms, squares of logarithms and with dummies for firms employing as many as 400 people in Bulgaria and 1.000 people in Romania. These figures are close to the average employment levels in both countries. Again, the results are robust.

As far as our competition variables are concerned, the results for Romania also go through when first differences of the indices are used instead of levels.

Our results go through when our investment-corrected variable for SBCs acts as the dependent variable.[31] The same holds when we constructed a SBC measure that circumvents the endogeneity that is possibly present in our measure for SBCs. Firms can run positive operating profits precisely because they benefit from SBCs. However, they are not selected via the original procedure. The alternative way to proceed was to compare last year's profit with the current year's NBF measure or with current year's credit period, but with no major change in the results.

As an alternative measure for concentration, we directly computed market shares from the AMADEUS data and added this variables to our regression (Nickell (1996)). The results for the regressions are included in Tables 6.8-6.11 in the appendix to this chapter. The conclusions we set out earlier for the Herfindahl and import penetration indices and for ownership information continue to hold unchanged. Market shares, however, turn out to be negative and significant, implying that higher market shares lower the probability of finding SBCs. Including squares of market shares, however, reveals that the relation between market shares and SBCs is non-linear. Smaller firms that fiercely compete for market share have little market power to price themselves to positive profits. Larger firms, however, can use their market power to earn positive profits. Firms with dominant market shares, however, are typically loss-making and qualify for SBCs. That also explains why in the restricted sample, market share always bears a positive sign, and why the significance of squared market shares in the restricted sample disappears.[32]

Therefore, we believe that the results convincingly argue that increasing competitive pressure and continuing through with the privatisation process has primary importance for policymakers in central and eastern Europe. In

[31] See Tables 6.6 and 6.7 in the appendix to this chapter.

[32] The fact that employment in the unrestricted sample earlier had a negative sign might be because it previously took up a market share effect. After correcting for market share, employment indeed becomes positive significant in Bulgaria in the entire sample. For Romania in the entire sample the sign becomes positive in the specification of column (2).

line with previous papers, our results suggest that private ownership can contribute to better performance, making firms less prone to suffer operating losses. However, if this is not complemented by competitive pressure, the merits of privatisation are limited. In particular, the results from the restricted regressions suggest strong effects from competition on the hardening of SBCs. Continued efforts to increase competitive pressure are particularly warranted since time dummies suggest that SBCs are nevertheless on the rise in both countries.

Possible problems with our results are twofold. First, our data set is biased towards large and medium-sized enterprises and does not allow us to distinguish between *de novo* private firms and privatised firms. Neither can we follow up the firms which are involved in mergers or split-ups. Second, our results possibly suffer from endogeneity problem. Firms can operate under SBCs because they occupy a strategic position within the sector. However, continued subsidies can prevent the sector from becoming more competitive. We have resolved this problem using lagged variables for Herfindahl and import penetration indices, and by carrying out regressions that restrict the sample. A more explicit dynamic approach or a two-stage procedure could be an interesting extension. Finally, reported profits from firms are often unrealistically squeezed towards zero (see Figures 6.13-6.16 in the appendix to this chapter) and this might influence our SBC variable. This reflects, among others, the reluctance of firms to report their losses or to pay high taxes on profits (Blanchard (1997)).

3.6 Conclusion

The aim of the chapter was to shed new light on the causes of SBCs by assessing their potential to empirically explain the incidence of SBCs in Bulgaria and Romania. We did so by using a panel data set for Bulgarian and Romanian manufacturing firms that covered the period 1995-1999. We used a random effects logit approach to try to explain the causes of SBCs, stemming from soft bank credit or stemming from inter-enterprise arrears. We used Schaffer (1998) measure for net-bank-financing SBCs and proposed a new measure, based on the credit period a firm enjoys. Our results suggest that the incidence of finding SBCs can be explained by the ownership structure of the firm and competitive pressure within the sector. Firm size, as proxied by the level of employment, is another determinant of SBCs, but only when firms are loss-making or after correcting for market shares. The opposite effect holds with respect to the ownership structure in Bulgaria: for loss-making firms, the ownership structure has no additional explanatory

value in explaining SBCs. Ownership, thus, is a strong indicator for performance but not for distinguishing between soft and hard budget constraint firms, once they begin to perform poorly. Comparing our results with the theoretical predictions of the various models we consider, we can confirm the hypotheses that competition, privatisation and firm size matter in explaining the incidence of SBCs. Finally, our results once again stress the importance of increasing competitive pressure and of continuing privatisation reforms in transition countries. The hardening of budget constraints continues to be a top priority.

Chapter 4

Too many to Fail? Inter-enterprise Arrears in Transition Economies

4.1 Introduction

In advanced market economies, non-financial firms frequently bundle the supply of capital with the supply of goods by granting trade credits to their customers. Such trade credits, voluntarily granted and paid back in due time, are considered part of normal business practice. In many transition countries, in contrast, trade credits, and more specifically overdue trade credits (inter-enterprise arrears), have emerged as a serious policy issue. At the start of transition, inter-enterprise arrears accumulated so rapidly as to threaten viable firms with spill-over effects. Some governments responded with bailouts of indebted firms to prevent cascading enterprise failures.

The aim of this chapter is to assess whether inter-enterprise arrears are still an obstacle for economies in transition by strongly linking firms via payables and receivables which might eventually result into an interlocking web of arrears. Applying a simple empirical framework, we assess the reasons a firm might get into arrears. For this purpose, we use survey data of Hungarian and Romanian firms to test for country heterogeneity. The resulting empirical snapshot suggests that trade linkages among Romanian firms continue to pose a substantial danger of creating chains of arrears, while this is no longer the case in Hungary. Apparently, some transition countries handled the arrears problem better than others. Possible explanations are the level of institutional development such as working bankruptcy procedures and financial intermediation, and, as an essential factor, government commitment

to market reform.

This chapter draws mainly on two bodies of literature. We look first to the discussion of trade credits in advanced market economies to understand the reasons for their extensive use in the presence of a functioning banking sector and their relation to development of financial institutions (e.g. Petersen and Rajan (1997), Demirgüc-Kunt and Maksimovic (2001)). The second relevant discussion concerns the role of trade credits in relation to the problem of soft budget constraints (SBCs) in transition economies. As shown by Berglöf and Roland (1998) and Perotti (1998), strong one-to-one trade linkages of firms increase the likelihood of government bailouts. Perotti (1998) notes the tendency to collusion among firms when a stabilisation programme lacks credibility, i.e. anticipating a collective bailout, firms have incentive to grant trade credits they know will not be paid back.

We further refer to papers that provide evidence of national arrears crises (e.g. Clifton and Khan (1993), Daianu (1994), Ickes and Ryterman (1992), Ickes and Ryterman (1993a), Rostowski (1994)), as well as to empirical papers on testing for the determinants of inter-enterprise arrears in transition economies. Johnson et al. (1999) use survey data to explain the importance of trust in the decision to grant trade credits. Trust is determined both by formal and informal rules. Frydman et al. (2000) use a probit model to test for the probability of default on obligations to different types of creditors depending on, among other variables, ownership structure. A paper by Calvo and Coricelli (1994) is particularly relevant for our approach as they empirically test for chains of arrears in Romania using data for state-owned firms in 1992, a time immediately following a general bailout when companies expected further relief. Our empirical snapshot differs from that of Calvo and Coricelli (1994) in three crucial respects. First, our more recent survey data is less distorted by the bailout. Second, our sample is more representative as we include firms with various types of owners (i.e. not just state-owned companies). This allows us to test whether certain types of owners are more prone to accumulate arrears and whether inter-enterprise arrears are a widespread phenomenon in a particular country. Additionally, our data set allows us to compare two countries in transition, Hungary and Romania. They have distinctly different transition experiences, making comparison valuable.

Our results provide striking evidence of the *Great Divide*, noted by Berglöf and Bolton (2002), that separates central and eastern European countries (CEECs) today. Some CEECs, including Hungary, continue to make steady progress in economic development, while others such as Romania have lost their economic momentum and suffer from marked macroeconomic imbalances and weak institutions.

This chapter is structured as follows. In Section 4.2, the reasons for the

extensive use of trade credits in advanced market economies and transition economies are described. The discussion then focuses on the linkages between trade credits and the problem of soft budget constraints. For illustrative reasons, Romania's general bailout is described. Section 4.3 specifies the data used for the empirical snapshot in Section 4.4 where we test for the existence of chains of arrears. The results are discussed in Section 4.5. Section 4.6 concludes.

4.2 Trade credits and soft budget constraints

In advanced market economies, non-financial firms routinely act as financial intermediaries by voluntarily granting trade credit to their customers. The use of trade credits is a fundamental form of short-term external financing in market economies and perhaps the most important source of finance in the United States (Jaffee and Stiglitz (1990)). In Germany, France and Italy, trade credits constitute over a quarter of total corporate assets (Demirgüc-Kunt and Maksimovic (2001)).

Several explanations for the extensive use of trade credits in advanced market economies have been put forward. One strand of theories emphasises the advantages suppliers likely have over financial institutions in running credit checks on their trading partners and in monitoring outstanding trade credits. Suppliers may well consider themselves to be in a superior position to financial institutions both in acquiring information on their customers' creditworthiness through their normal business connections and in controlling and sanctioning a customer's default on debt (e.g. stopping further deliveries). The use of trade credits may also allow suppliers to price discriminate where certain pricing policies are otherwise prohibited by law. Moreover, the provision of trade credits may reduce transaction costs, e.g. by combining invoices, setting payment schedules or rationalising organisation of inventories (Petersen and Rajan (1997)). A supplying firm may even be willing to provide its trading partners with trade credits in situations where financial institutions would have otherwise turned down the trading partner. Here, it is efficient for the supplier to borrow from banks, while providing trade credits to customers. The use of trade credits should therefore be positively correlated with bank lending implying that trade credits depend on the efficiencies of the banking sector of a country. Demirgüc-Kunt and Maksimovic (2001) provide empirical evidence for this view, demonstrating that informal credit arrangements between firms complement development of the banking sector.[1] Overall, the use of trade credits generally leads to an efficient

[1] Jain (2001) shows theoretically that trade creditors do not compete with banks.

channeling of short-term capital to their greatest use, even where a financial sector specialised in providing capital exists.

A strikingly different situation arose at the start of transition, when many CEECs had to confront explosions in the use of trade credits and trade arrears. Various explanations of the rapid accumulation of trade credits in these transition countries have been suggested. The most widely accepted causes are the credit crunches enterprises faced after stabilisation programmes with tight fiscal policies were implemented (e.g. Calvo and Coricelli (1994)) and the lack of financial discipline of firms in transition (e.g. Rostowski (1994)). Under these arguments, trade credits are a peculiar form of credit provided involuntarily to trading partners without an expectation of repayment. In fact, trade credits and trade arrears in CEECs are sometimes considered as part of normal business practice as in advanced market economies. These arguments assume that firms have learned to assert their claims using credit control mechanisms (Schaffer (1998)). Under such assumptions, inter-enterprise arrears do not represent a serious threat to the economy. A further approach regards the explosive increase of trade credits and inter-enterprise arrears as part of an adjustment from centrally planned economies, where the use of inter-enterprise credits was generally forbidden,[2] to levels comparable to Western market economies (Begg and Portes (1993a)).

However, CEEC experiences clearly show that inter-enterprise arrears can rapidly accumulate to form an interlocking web of arrears. The consequent congestion of the payment system from non-payment of bills puts suppliers in financial distress because they cannot pay their own bills. As shown by Berglöf and Roland (1998), the interlocking nature of inter-enterprise arrears can raise the problem of soft budget constraints (SBCs).[3] They analyse SBCs as a dynamic commitment problem in the presence of irreversible investments and allow for the possibility of spill-over effects due to trade linkages. It is assumed that the return from a good project decreases with the number of liquidated projects so a government or bank faces the potentially extremely costly situation where liquidation of bad firms reduces the pay-off of good firms. The government or (state-owned) bank is therefore inclined to rescue bad firms to prevent harm to good firms. These spill-over effects, due to strong one-to-one relations between suppliers and buyers, may induce SBCs. Thus, trade credits become a prolongation of SBCs backed by an awareness that chains of arrears or an interlocking web of arrears will likely lead to a government bailout. Therefore, while individual firms are not "too big to

[2]Notable exceptions were found, e.g. in Hungary (Buch (1996)).

[3]Kornai (1979) introduced the term soft budget constraints into the literature referring to a situation where a loss-making firm is bailed out to guarantee its survival.

fail," they can, in aggregate, be "too many to fail."[4] Perotti (1998) shows theoretically that enterprises might collusively accumulate trade credits when they expect to be bailed out by a government that wants to avoid a pull-down of good firms chain-linked to bad firms. Thus, suppliers strategically extend credits to their customers knowing it is unlikely the credits will ever be paid back.

The Romanian experience provides a highly illustrative example of collusive behaviour among firms. With the launch of economic reforms in the early 1990s, Romania experienced a drastic acceleration of inter-enterprise arrears. Enterprises feared damaging effects from the blockage of the payment system which they saw as responsible for the fall in output,[5] and pressured the government to deal with the problem.[6] At the end of 1991,[7] after the failure of various attempts to reduce arrears, the government instituted a general bailout described as a "global compensation" plan to wipe away nearly all inter-enterprise arrears.[8] Such financial relief did little to solve the problem. Ahead of the government's action, inter-enterprise arrears rose on the near-certainty of an impending bailout. Moreover, as discussed by Perotti (1998), moral hazard problems were worsened because the government was unable to credibly convince firms the bailout would not continue. Despite passing a new law on enterprise financial discipline[9] and public announcements that there would be no further bailouts, firms continued to bet on further rescue efforts (Clifton and Khan (1993), Perotti (1998)) and inter-enterprise arrears

[4] Mitchell (1998) uses the term "too many to fail" to describe the situation where it is more costly to close a large number of banks than bail them out.

[5] Real GDP decreased by 5.6% in 1990 and 12.9% in 1991 (EBRD (2000)).

[6] Inflation sharply increased – partly because of rising inter-enterprise arrears – which also drove the need to find a quick solution to the arrears crisis (Clifton and Khan (1993)).

[7] Inter-enterprise arrears reached about 50% of GDP (Clifton and Khan (1993)).

[8] In practice, the government asked all firms to list their arrears with other firms or the state. Banks gave credits with government guarantee and eventually cleared the backlog of arrears (Clifton and Khan (1993)).

[9] The law on financial discipline (Law 76) spells out the following measures:

"*Article 9:* Economic agents with overdue payments obligations that remain unsettled for more than 30 calendar days after the due date shall be considered insolvent. Payments insolvency must be communicated to the debtor by any creditors, including the state, after the period of 30 days has expired.

Article 10: Following a court decision confirming insolvency, creditors can take action to liquidate unsettled claims of their debtors. Economic agents having unsettled claims shall be sued and subjected to compulsory payment or a forced sale of their assets in the following order: monetary means, including deposits in banks; inventories of raw materials and finished products; claims and fixed assets; and other estate items.

Article 12: The list of economic agents declared insolvent shall be made public." (Clifton and Khan (1993)).

increased after implementation of the global compensation scheme (Figure 4.1).

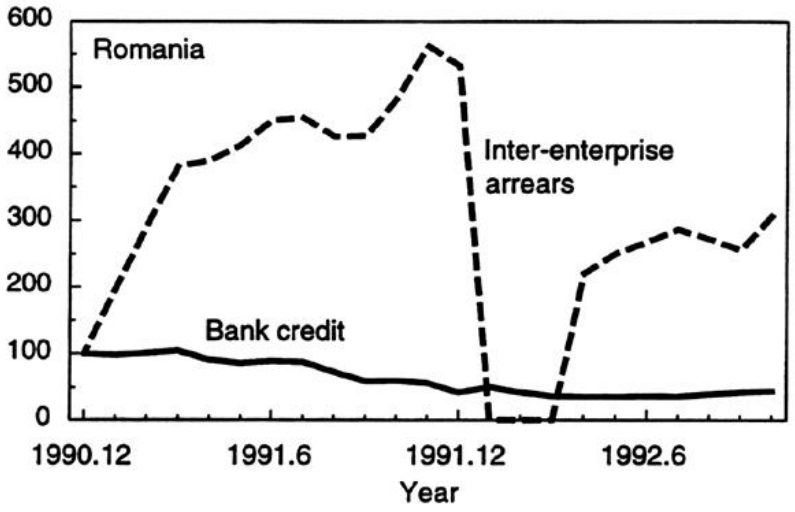

Figure 4.1: Development of bank credits and inter-enterprise arrears/credits in Romania 1990-1992, deflated by producer price indices, starting date figure =100 (from Calvo and Coricelli, 1994)

The accumulation of inter-enterprise arrears can jeopardise reform efforts because the lack of financial discipline encourages inefficient allocation of resources. Managers have no incentive to restructure or submit to economic demands. Distortion also arises as nonviable firms are sustained and the normal exit of firms – a driving force for the reallocation of resources to productive firms – is suspended. It becomes difficult for outsiders to differentiate between good (economically viable) and bad firms due to uncertain liquidation values, which complicates the implementation of bankruptcies (Begg and Portes (1993b), Perotti (1999)).[10]

The accumulation of inter-enterprise arrears can also cause inflation. Monetary control can be defeated by firms that circumvent a tight credit market by creating their own liquidity through trade credits (e.g. Daianu (1994)). By gaining liquidity, firms do not feel compelled to rein in prices and wages or otherwise adjust to market conditions. This fuels inflationary pressure and undermines attempts by monetary and fiscal authorities to stabilise the economy (IMF (2001), OECD (2002)).

[10]Ickes and Ryterman (1993b) discuss in detail the importance of good enterprise-level information for imposing hard budget constraints.

The main objective of our empirical testing is to analyse whether negative spill-over effects that might eventually set off chains of arrears can be identified in the data. As predicted in the theoretical literature, we expect interlinkages between firms to increase the likelihood of SBCs. In the regression, we include several other variables that might influence a firm's arrears.

The number of employees, as a measure of firm size, is included. Firm size can then be linked with overdue trade credits in either of two ways. First, assuming a paternalistic governmental attitude accounts for a lack of financial discipline (Kornai (1980)), we might expect firms with large number of employees to be more prone to run into arrears. The government wants to maximise employment or output, so large enterprises feel less threatened by bankruptcy than small firms. Thus, the size of a firm would have a positive effect on overdue payables. Conversely, firm size could have a negative influence on arrears. According to the literature on trade credits, larger firms have better access to bank credits than smaller firms. They are regarded as more creditworthy because they are older and better established and, therefore, less constrained by liquidity. This, in turn, makes them less dependent on the use of trade credits than small firms (Petersen and Rajan (1997), Nilsen (2002)), i.e. big firms might be in a better position to pay their bills on time.

Ownership variables are included to test whether certain owners are more likely to accumulate overdue debts. In line with the theoretical work of Dewatripont and Maskin (1995), we predict state-owned firms are less likely to comply with financial discipline.[11]

Obviously, the financial situation of a firm is a decisive factor in a firm's ability to pay on time. In transition economies, Carlin et al. (2000) find a strong positive correlation between barter, which has similar functions as trade credits, and financial problems of firms. Overall, firms in financial distress might be less able to meet their liabilities in due time than healthy firms. Thus, we control for the general financial situation of firms in the regression analyses.

Daianu (1994) argues that the degree of outward orientation of a firm can be crucial for avoiding chain links between firms. If a firm exports to foreign markets with liquid customers that follow prudent business practices, it may escape the network trap of inter-enterprise arrears within the country. Therefore a variable reflecting outward-orientation of a firm is included.

[11] Again, it can be argued that state-owned firms have better access to bank financing and thus are less likely to use (over-) extended credit periods.

4.3 The survey data

The data used to test the aforementioned hypotheses is based on a detailed survey of several transition economies conducted at the end of 1996 and beginning of 1997 by LICOS (Centre for Transition Economies, K.U. Leuven, Belgium) under the framework of the Phare-Ace network's "Understanding Enterprises in Transition". Firms were surveyed in several CEECs, including 123 in Hungary and 126 in Romania. The present study is based on a sub-sample of this original data set and excludes firms with incomplete information. Hungary and Romania were chosen because of their differences: Hungary is among the most advanced CEECs, while Romania lags most CEECs in its economic progress.[12] The choice of these two permits us to test for country differences that explain the accumulation of debts.

In the survey, firms were asked about the structure and maturities of their liabilities and receivables. The data set not only includes to whom the receivables are owed and to whom the liabilities have to be paid, but also whether they are overdue. To test the hypothesis that inter-enterprise arrears induce negative spill-over effects, the survey provides a basis for creating dummies indicating whether a firm has outstanding receivables and overdue liabilities. In both countries, most overdue payables of firms are owed to other firms. Firms are less likely to default to banks or the government.[13] A similar picture arises for overdue receivables: firms, rather than households, banks and the state administration,[14] are more likely to default on their payment obligations.[15]

Pursuing our hypothesis that the size of a firm affects the willingness or ability to comply with financial obligations, we include the number of employees in the regressions. The average Romanian firm is quite large compared to firms in Hungary.[16] This reflects the fact that the Romanian economy was,

[12]The European Commission's latest "Report on the progress of candidate countries towards meeting the economic criteria for accession" European Commission (2001e), rates Hungary as a functioning market economy that should be able to cope with the competitive pressure and market forces within the EU. Romania, in contrast, does not yet meet the economic criteria for membership. The differences in per capita income were quite large. In 1999, GDP per capita was $4,775 in Hungary and $1,512 in Romania (EBRD (2001)).

[13]In Hungary, around 38% of sample firms defaulted to other firms, 10% to banks and 18% to the government. For Romania, 64% defaulted to other firms, 34% to banks and 44% to the government.

[14]"Receivables from state administration" includes subsidies and grants.

[15]In Hungary, 69% of sample firms report late payments of firms. In Romania, 65% of the firms have business partners who pay late. In both countries, receivables from private households, banks or the government are rather unimportant. They amount to about 3% in Hungary and 8 % in Romania.

[16]The mean is 363 in the sample Hungarian firms and 2,673 in the Romanian firms.

and still is, more centralised with its huge conglomerates intact.

The ownership structure of firms also varies between the two countries. In Romania, the privatisation process is less advanced than in Hungary, where most state-owned companies are already privatised. We create dummies that indicate whether a firm is state-owned, privatised[17] or *de novo*. The last type, which is the omitted variable in the regressions, is defined as a firm that since its establishment is 100% privately owned and founded after January 1, 1990.

As mentioned, the overall financial situation can be a decisive factor for the accumulation of payables. Thus, a variable accounting for the ability to pay is considered. Firms were asked if they have experienced financial difficulties since 1989 and in which year. We were able to construct dummies indicating different degrees of financial distress.[18] Admittedly, using a measure of the financial situation of a firm based on a managerial evaluation rather than financial statements (e.g. balance sheet, profit/loss or cash flow) may be controversial. However, we believe a managerial assessment gives a good overall picture of the liquidity constraints the firm faced. Furthermore, complete information e.g. about sales and profit/loss is often unavailable.

To test whether firms are able to avoid networks of arrears in domestic markets by exporting their products, we used a dummy that reflects the export-orientation of a firm.[19] In Hungary, 24% of all sample firms exported more than 50% of their products. In Romania, only 9% of the surveyed firms were strongly export-oriented.[20]

4.4 An empirical snapshot

Our empirical testing provides a snapshot of the two economies. Our main question is whether firms are more likely to have overdue liabilities because of their overdue receivables. In the first regressions (see columns 1 and 2 of Tables 6.13 and 6.14 in the appendix to this chapter), we test for the likelihood that a firm has defaulted on any of its outstanding debts. In doing so, we infer a difference between the accumulation of any arrears a firm has and its inter-enterprise arrears. The dependent variable equals 1 if the firm

[17]The category "privatised firms" includes enterprises owned by insiders.

[18]Around 34% of all Hungarian firms experienced financial difficulties for at least three years. This situation is similar to that of Romania, where around 31% of all sample firms had financial trouble for at least three years.

[19]We define a firm as export-oriented when at least 50% of its products are sold abroad.

[20]The view that Hungary is more outward-oriented than Romania is further evidenced by its share of trade in GDP defined as the ratio of exports plus imports over GDP. In 1997, the share of trade in GDP was 90.2% for Hungary and 53.9% for Romania (EBRD (2001)).

has outstanding debts[21] and zero otherwise. Due to the discrete dependent variable, we use a logit model. The results for Hungary are presented in Table 6.13 and for Romania in Table 6.14. To identify chains of arrears, a dummy for outstanding receivables from trading partners, banks, households and the budget is included. We control for further factors that might increase the likelihood of a firm running into arrears. As argued above, firm size, ownership structure and the firm's overall financial situation may influence its ability or willingness to meet its financial obligations. In addition, a dummy representing the export-orientation of the firm is included, because firms that can escape the network of arrears by exporting to other markets may be in a healthier position and do better job of paying their bills on time.

In Hungary, arrears appear to be largely determined by the firm's financial difficulties. Overdue receivables, as well as ownership structure and export orientation have no significant effect on firm arrears. To get an estimate of the magnitude of the impact of a particular variable, marginal effects are calculated. Positive coefficients indicate an increase in the probability that the firm has to report overdue liabilities. For Hungary, the probability is highest for the variable representing financial difficulties. If the variable changes from 0 (no financial difficulties for three or more years) to 1 (financial difficulties for at least three years), the probability that a firm has overdue liabilities increases about 35%.[22] In the second regression of Table 6.13, ownership variables and a variable for export-orientation of a firm are added. The results of the first regression remain largely unchanged. Although overdue receivables and the variable for state ownership are not significant, marginal effects have a value of around 20% (positive in the first case and negative in the latter).

The results for Romania differ strongly from the Hungarian results. As indicated in Table 6.14, overdue liabilities of a firm are strongly explained by overdue receivables; the marginal effect amounts to 25% whereas financial difficulties a firm faces are not decisive for having overdue liabilities. As can be inferred from the second regression of Table 6.14, state ownership seems to have a significant effect on overdue liabilities of a firm (with a marginal effect of 24%). The probability for having overdue liabilities subject to having overdue receivables increases to 31%.

In both countries, employment has no effect on the likelihood of a firm running into arrears. This it also true for export orientation, although the negative sign implies that an increase in exports reduces the likelihood of arrears.

[21] This includes outstanding debts to other firms, to the bank and to the budget.

[22] We consider different degrees of financial difficulty, but basically they did not affect our results.

Regressions 3 and 4 in both tables present an estimation of the likelihood of a firm's default on obligations to trading partners as a function of its outstanding receivables from trade with other firms. The results are largely the same. In the case of Romania, the idea of interlinkages between firms is stronger: the marginal effect rises to over 70% when enterprise transactions are considered alone.

4.5 Discussion of the results

The empirical results should be taken as a snapshot of the two economies. We address the stock – not the flow – of arrears. No time series are used. Moreover, due to the data limitations, we could not include variables with possible explanatory value such as industry-specific characteristics and accessibility to bank financing. Despite this, the results are revealing and provide strong evidence of that chains of arrears existed in the Romanian economy even after more than seven years of transition. Considering the development of inter-enterprise arrears in recent years (see Figure 4.2 below), chains of arrears probably continue to present a systematic risk for the country. In the Hungarian sample a firm's overdue liabilities were generally determined by its financial situation, indicating that chains of arrears have been largely broken up. Firms which are more constrained by liquidity or which lack easy access to bank finance rely more heavily on trade credits (Petersen and Rajan (1997)). This suggests firms in Hungary have already moved to more market-oriented conditions and practices. In the case of Romania, the ownership structure of firms also influenced the likelihood that a firm will run into arrears. State-owned and certain privately-owned firms were more likely to run into arrears.

Why would a country allow itself to stumble into an interlocking web of arrears? As already pointed out, a multitude of causes have been put forward to explain this undesirable outcome. Early in the transition process, a surge of trade credits is mainly seen as a natural response to the credit crunch that firms faced after the launch of tight credit policies to keep inflation under control and force firms to comply with financial discipline.[23] Thus, firms had to rely on other financial sources, i.e. trade credits, to escape the liquidity squeeze (Calvo and Coricelli (1994), Perotti (1998), Commander and Mummsen (2000)). After the implementation of stabilisation programmes in CEECs, most experience a sharp increase in trade arrears. Some govern-

[23]Using macroeconomic data for Russia, Kim et al. (2001) found out that the lack of restructuring and low liquidity of firms have a positive influence on barter comparable to trade credits.

ments, such as Hungary's, staunchly resisted bailing out firms,[24] while others undertook massive rescue operations. Berglöf and Bolton (2002) argue that these divergent policies at the start of transition already opened up the *Great Divide* in economic and financial development of CEECs. The evolution of trade credits, as well as overdue trade credits, merely illustrates broader differences among CEECs in making the move to market-oriented economies. While the trade-credits-in-arrears situation has yet to stabilise in Romania, the situation in Hungary is quite stable (Kornai (2001b)). Indeed, one can observe a sharp increase in enterprise payment arrears in Romania (see Figure 4.2), which supports the hypothesis that trade arrears are continue to be a severe problem for the economy as also pointed out by the IMF (2001) and the OECD (2002).

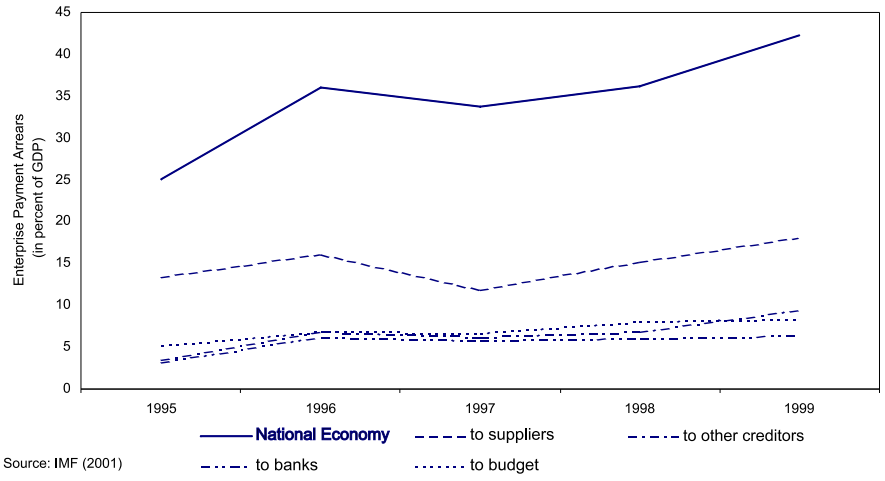

Figure 4.2: Development of enterprise payment arrears in Romania (1995-1999)

What determines whether an economy falls into an arrears crisis or quickly adjusts to a more market-oriented behaviour? Why is the outcome in Romania so different from more advanced transition countries such as Hungary? What determines collusive behaviour of firms?

Romania notably failed to establish such market-supporting institutions as working bankruptcy procedures. Bankruptcy laws and their consistent

[24] Although many Hungarian firms found themselves "waiting in line" for payments in the early 1990s. This is the freeze-up of the payments system where creditors cannot pay their bills because they have outstanding receivables from their own customers (Mitchell (1993)).

enforcement[25,26] are essential in market economies because they force the precise defining of property rights and the exit from the market of unprofitable firms in order to free up resources for productive use. Perhaps most importantly, the threat of bankruptcy imposes financial discipline on the debtor (Mitchell (1993)). Which is to say that firms not threatened by sanctions feel no obligation to meet their financial commitments as the threatened costs and sanctions are minor. The Romanian government failed to signal its strong commitment to imposing financial discipline on firms, finding it politically and socially expedient to allow the continuation of economically nonviable firms. Additionally, the combination of long-term historical ties between firms combined with the assurance of government support induces firms to grant credit to uncreditworthy customers. This collusive outcome is further supported by the lack of alternative markets with liquid customers (Perotti (1999)).

A very different picture emerges in Hungary. The rapid increase of enterprise arrears in the early 1990s was a decisive factor in the implementation of a tough bankruptcy law in 1992. The law contained an "automatic triggering" clause, whereby managers were required to file for reorganisation or liquidation within eight days when they had arrears exceeding ninety days (Gray et al. (1996)).[27] The Ministry of Finance adamantly rejected political calls for a bailout of enterprises, seeking instead to prevent the softening of budget constraints and enforce financial discipline (Mizsei (1994)). In such an environment, characterised by a credible commitment to economic reforms, firms quickly adopted market rules and learned to deal with overdue credits (e.g. by stopping deliveries to customers, requiring advance payment or denying credit). Chains of mutual debt among enterprises were rapidly broken up. Trade creditors were soon aggressive in forcing firms to comply with their financial obligations (Mitchell (1993)). As Schaffer (1998) notes, trade arrears for Hungarians are generally treated as part of normal business practice as in advanced market economies.

Low financial intermediation is often blamed for mounting overdue trade credits. Well-functioning financial markets are necessary to provide liquidity to creditworthy firms. With alternate financial sources unavailable, firms use

[25]Especially in transition countries, political constraints such as vested interests of officials in preventing closure of firms, are often an obstacle to implementing bankruptcies effectively (Mitchell (1993)).

[26]Inefficiencies with bankruptcy proceedings can also be caused by a lack of aggressiveness on the part of creditors in insisting on repayment (Mitchell (1993)).

[27]The "automatic triggering" clause helped precipitate a massive wave of corporate failures that overwhelmed Hungary's bankruptcy courts. At the end of 1993, the government moved to eliminate the "automatic triggering" clause (Burniaux (1995)).

trade credits more likely to avoid a liquidity squeeze. In Figures 4.3 and 4.4, two standard measures are given: national financial development reflected in broad money and credit to the private sector as a percentage of GDP. Financial intermediation is low in all transition countries, but, as shown, it is particularly low in Romania.[28] Without alternative sources of financing or high opportunity costs for bank lending in comparison to the use of trade credits,[29] firms are prone to rely on trade credits.

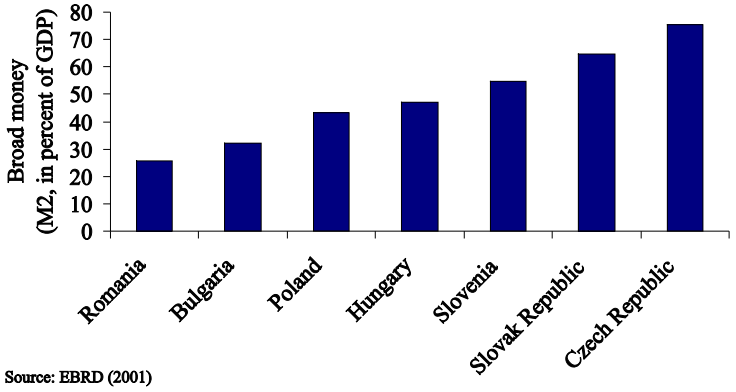

Figure 4.3: Degree of monetisation of transition economies (1999)

However, as noted by Berglöf and Bolton (2002), underdeveloped financial markets are largely an outcome of institutional backwardness and can be linked to progress in introducing market reforms. An environment characterised by macroeconomic imbalances, unenforceable contracts, soft budget constraints on firms and banks, and an overall weak trust in the domestic economy, undermines financial sector development.

A further factor complicates the establishment of a working banking sector in transition economies. Banks often face problems assessing the financial viability of a firm because information systems are undeveloped and fail to pool basic credit information.[30] An interlocking web of arrears makes it al-

[28] In contrast, credit to the private sector as a percentage of GDP is much higher in western market economies, in 1996, e.g., 154% (USA) and 104.9% (Germany). The same is the case for M2/GDP. In 1996, this measure amounts to 59% in the USA and 62% in Germany (World Bank (1998)).

[29] The price of trade credits in advanced market economies, in contrast, is generally high because firms lose their early payment discount. This corresponds to an annual interest rate over 24% (Jaffee and Stiglitz (1990)). In such cases, trade credit finance could be regarded as a less preferable alternative to bank lending.

[30] This is true even in advanced transition countries such as the Czech Republic (Business

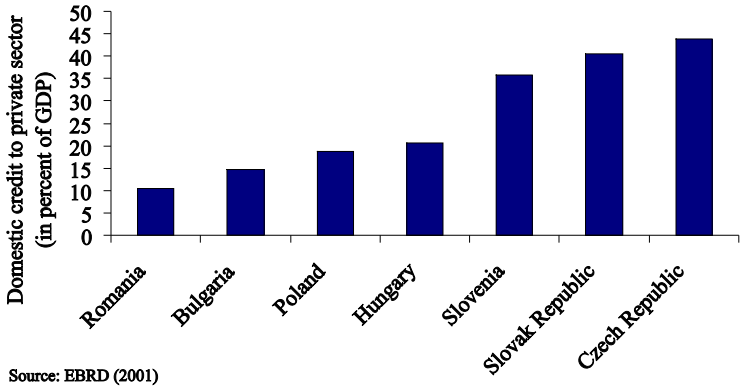

Figure 4.4: Credit to the private sector (1999)

most impossible to distinguish between "good" and "bad" firms, i.e. evaluate creditworthiness (Perotti (1999)). Banks thus may prefer lending to state-owned firms they have known for years rather than new firms. Linkages between state-owned firms and banks, which are also frequently state-owned,[31] may prevent credit from being allocated efficiently. Moreover, privatisation is harder if firms are burdened with arrears of payments (Begg and Portes (1993a)).

Although it is generally agreed that the development of the financial system can have positive effects on economic growth (see e.g. King and Levine (1993b) and King and Levine (1993a)) and that financial markets are necessary for effective restructuring and hardening of budget constraints of firms (see e.g. Ickes and Ryterman (1993a)), a basic institutional framework needs to exist to promote the evolution of capital markets. This raises a fundamental follow-up question: Why did some CEEC governments managed to resist bailouts and vested interests better than other countries?

Failure to move quickly to a market-oriented economy could partly account for a certain degree of economic backwardness. All transition countries inherited economic distortions from the planned economy, but there was a large variation in starting points when they began to move towards a market economy. De Melo et al. (1997) observe that the Romanian economy was in much poorer shape than Hungary's with regard to macroeconomic distortions, development and over-industrialisation. Due to Romania's more

Central Europe (2000))

[31] In 2000, Hungary's state-owned banks held 8.6% of total assets, while in Romania, state-owned banks controlled 50% of total assets (EBRD (2001)).

substantial misallocation of resources, the social and economic costs of reforms (e.g. large layoffs without alternative job prospects) were probably much larger than for countries such as Hungary. Transition reforms in Romania were so onerous that they threatened to provoke a public backlash, and consequently weakened political support for reforms (Daianu (1999)).[32] Political constraints seem to have been decisive in preventing Romania from embracing reform.

Favorable geographical conditions, such as the proximity to the Western markets, may also play a role in encouraging the move to a market economy (Perotti (1999)). The prospect of EU membership has had strong leverage effects on reforms by acting as an "outside anchor" that discourages inertia and reform backsliding. Indeed, it has even spurred economic reform in some cases (Berglöf and Roland (1997), Fischer and Sahay (2000)). Hungary is currently a front-runner among EU accession candidates, while Romania trails at the rear of the pack.[33]

4.6 Conclusion and policy implications

Using a simple empirical framework, we tested for the presence of chains of arrears in two transition economies, Hungary and Romania. Our results suggest that, while strong trade linkages had been broken up in Hungary, this was not the case for Romania. Assumably, trade credits still represent a systemic risk to the Romanian economy. Country experiences show that the problem of arrears is closely linked with the ability to adjust to structural changes, as well as the credibility of the national stabilisation programme early in transition and institutional development in the long run. After a decade of transition in central and eastern Europe, it is clear that building market-oriented institutions and changing government perceptions is a complex, time-consuming challenge.

What should a government do in the short run if it faces a large stock and flow of inter-enterprise arrears and its economy is susceptible to a chain of arrears? There are two extreme positions. The first, as e.g. proposed by Schaffer (2000), is to do nothing. The alternative is to implement a general

[32]This was seen in the last election. In 1997, a reformist centre-right coalition came into power and introduced major reforms based on "shock therapy". These costly reforms failed to prevent a drastic decline in industrial output and did not reduce inflation as much as hoped. Parliamentary and presidential elections in 2000 returned a less reform-oriented, social democratic government to power (Pop-Eleches and Pop-Eleches (2001)).

[33]As of July 2002, Hungary had closed 26 of 31 chapters in the *acquis communautaire*, the basis of accession negotiations between the EU and candidate countries. At that time, Romania had closed 13 chapters (European Commission (2002a)).

bailout of firms in arrears. Both strategies carry severe consequences. The first strategy is advisable only if firms already apply basic credit mechanisms and no interlocking webs of arrears have yet formed. The negative spill-over effects generated by this approach can put viable firms at risk. The second strategy solves the stock problem of arrears in the short-term, but gives rise to serious moral hazard problems. Further, a stringent liquidation of firms in arrears is difficult to enforce because the state lacks information to distinguish between good and bad firms. In the short-run, the government should, in principle, signal its commitment to economic reforms by liquidating inefficient firms. Indeed, Stiglitz (1994, p. 238) argues this is "perhaps the most important commitment." In Romania's case, however, such a commitment would have extended mainly to state-run utility companies because they were the biggest actors in accumulating enterprise arrears (Santarossa (2001), OECD (2002)). Rather than setting a good example, the state itself may be reluctant to follow basic market economy principles.

For less advanced CEECs to cross the *Great Divide* and escape the transition trap, they should focus on building up market-supporting institutions and work to improve confidence in government policies and competitive markets. The state is still overinvolved in the Romanian economy which impedes market-based adjustments such as private sector development (OECD (2002)). The inflow of foreign direct investments should be promoted as a way to impose market-oriented practices and infuse liquidity into the country. Of course, this is an admittedly recursive goal, given that attracting foreign capital is conditioned on the presence of functional institutions and economic stability. In this context, it is important to point to the interdependencies of policy measures. For example, sustained low inflation rates can only be achieved if budget constraints are hardened. After over a decade of transition, it is clear that each step of these countries towards the market economy marks more than forward progress, it also leaves an imprint of proof that its policymakers have once again avoided pitfalls never anticipated at the journey's start.

Chapter 5

Institutional Reform and Progress in Transition

5.1 Introduction

Aim of this chapter is to analyse the impact of institutional reforms on economic performance in central and eastern European countries (CEEC)[1], southeastern European countries[2], the Baltics[3] and the Commonwealth of Independent States (CIS)[4]. Today, after more than ten years of transition, first conclusions from experience in these countries can be drawn. The transition from centrally planned to market economies has revealed a striking divergence in approaches to reform and in economic performance. At the start of transition, almost all transition economies chose to liberalise prices, open up trade and launch privatisation programmes and, in addition, they have sought sustained macroeconomic stabilisation. At the same time, most CEEC and the Baltics, worked to get administrative, legal and financial institutions in place while countries in southeastern Europe and the CIS widely failed linking price and trade liberalisation and privatisation to further market-supporting institutions. Today one can observe that many southeastern European countries and CIS are stumbling while most CEEC and the Baltic states are moving ahead. Differences in establishing institutions that support the newly emerging market economies might be largely accountable for the variation

[1]Czech Republic (CZR), Hungary (HUN), Poland (POL), Slovak Republic (SLK) and Slovenia (SLV).

[2]Bulgaria (BUL) and Romania (ROM).

[3]Estonia (EST), Latvia (LAT) and Lithuania (LIT)

[4]Armenia (ARM), Azerbaijan (AZB), Belarus (BEL), Georgia (GEO), Kazakhstan (KAZ), Kyrgyzstan (KYR), Moldova (MOL), Russia (RUS), Tajikistan (TAJ), Turkmenistan (TUR), Ukraine (UKR) and Uzbekistan (UZB).

in the patterns of economic progress in transition countries. Therefore, our working hypothesis is that transition countries with a sound institutional infrastructure can reach higher productivity levels and economic growth.

First empirical evidence for this presumption can be found in Figure 5.1 where the association between institutional reforms and output growth is illustrated. Institutional reforms are represented as the sum of the 2001 transition indicators of the *European Bank for Reconstruction and Development* (*EBRD*). The transition indicators provide assessments of progress in three main areas which play an important role in a market economy: markets and trade (including the categories price liberalisation, trade and foreign exchange system, competition policy), enterprises (including the categories large- and small-scale privatisation, governance and enterprise restructuring), and financial institutions (including the categories banking reform, interest rate liberalisation and progress in the field of securities markets and non-bank financial institutions).[5] Economic performance is measured as the average growth rate of real GDP from 1994 to 2001. As can be seen in Figure 5.1, successful countries cluster in the upper right quarter of the diagram with a high score in institutional reform and positive average GDP growth rates, while countries that have achieved less institutional progress show low or even negative growth rates.

In the literature on transition economics, empirical studies can be found which try to link institutional reforms and economic performance in transition countries (De Melo et al. (1997), Havrylyshyn et al. (1998) and Berg et al. (1999)). All of these studies use an aggregated index developed by De Melo et al. (1996) to represent institutional reforms.[6] Our analysis differs in that we map institutional reforms by *disaggregated* proxy variables to see whether institutional changes lead to economic progress in transition.

This chapter is organised as follows. Section 5.2 sets out the theoretical background, our measures of institutional changes, the basic hypotheses, model specifications and data descriptions. The empirical results are presented in Section 5.3. Section 5.4 summarises the findings and concludes.

[5]Progress in the areas is measured against the standards of industrialised countries and given integer values from 1 to 4. Another 0.3 decimal points are added or subtracted to indicate trends. These values reflect cumulative progress in the movement from the centrally planned to the market economy, rather than year-to-year changes.

[6]This index consists of a measure of internal liberalisation, external liberalisation and private sector and financial sector reforms.

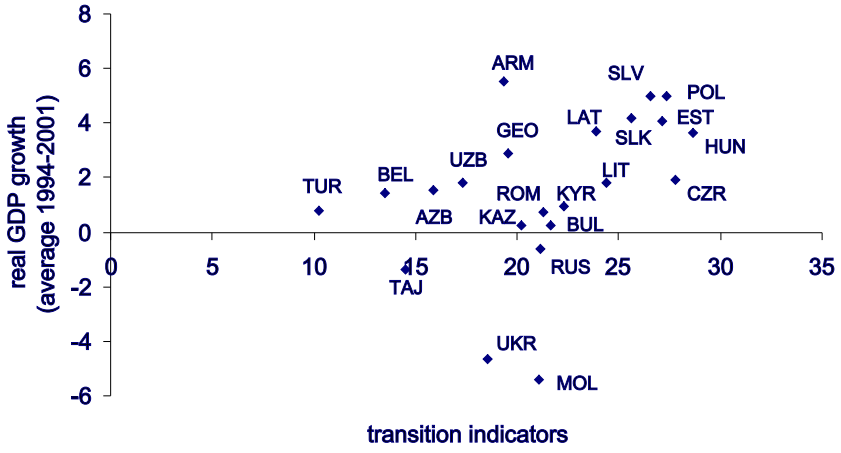

Figure 5.1: Real GDP growth and institutional reforms. Source: EBRD (2001)

5.2 Institutions, growth and productivity

5.2.1 Theoretical background

There does not, as yet, exist a comprehensive theory which fully captures the particular determinants of output and productivity growth in transition countries. We can, however, draw upon some key works and use the associations between particular determinants and economic performance that result from those studies.

Already since Adam Smith (1776) the importance of competition for promoting economic performance has been stressed. Competition is central to any market economy and thus a core issue of transition. Rapid price and trade liberalisation are important first steps on the road to a market economy as they increase competitive pressure and force firms to restructure and to reorganise production. Competition increases the manager's insolvency risk, which reduces slack, which leads to higher productivity (e.g. Schmidt (1994)). We thus focus attention on institutions that support competition as reflected by the degree of price and trade liberalisation. Overall, the need to respond to market signals should improve allocative efficiency.

In most transition economies, price and trade liberalisation were the first measures taken to induce competition in planned markets.[7] By themselves,

[7]As mentioned in Chapter 5.1., privatisation is also an important element of the tran-

however, these measures might be insufficient to drive economic and productivity growth. The creation of incentives to reorganise production and reallocate resources in the transition economies also calls for the dissolution of the close government-firm relationship that existed during socialism. Problems that arise from such government-firm relationships concern the inability of the government to commit credibly not to rescue troubled firms, a fact that is manifested in the prevalence of soft budget constraints (SBCs[8]). Soft budget constraints can harm economic progress as they not only prevent efficient allocation of resources by eroding financial discipline (Kornai (1980), Dewatripont and Roland (1996)), they may also impede innovation (Qian and Xu (1998)), hamper economic growth (Huang and Xu (1999)) and output (Schaffer (1989)). Budget constraints can be softened through different channels. Kornai (2001a) lists fiscal subsidies, soft taxation and soft bank credits as the main elements of SBCs with which the government can support firms. In our empirical analysis, we include Kornai's main elements of budget softness.

In the following empirical testing we examine the association between competitive forces (represented by the degree of price and trade liberalisation and privatisation) and further supporting institutions (represented by the extent of soft budget constraints) on one side, and economic performance on the other. As the theoretical background suggests the core of this relationship is the provision of economic incentives for firms to restructure and reallocate resources. If institutional reform successfully provides economic incentives for firms to react to market signals, this should be reflected in output and productivity growth. We formulate our basic hypothesis as follows:

- The implementation of institutional reforms leads to better economic performance in transition economies.

Or, alternatively

- Price and trade liberalisation and the hardening of budget constraints contribute positively to GDP growth and promote productivity growth.

5.2.2 The data

Our sample includes 23 transition economies[9] and covers the period from 1992 to 2000. We work with an unbalanced sample data set. To secure a

sition process. Aspects of privatisation are discussed in Chapter 5.3.2.

[8]Kornai (1979) introduced the concept of SBCs which describes the situation where loss-making firms are bailed-out or refinanced.

[9]Our sample covers Albania, Armenia, Azerbaijan, Belarus, Bulgaria, the Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Mol-

semblance of consistency and comparability, the data used here all come from the annual *Transition Report* of the *EBRD*. In addition to the general lack of transition economy data, one should use special caution in treating the available data. GDP growth, in particular, is likely to be understated due to unofficial economic activity, which can be as much as 40-45% of all economic activity in some transition countries (Havrylyshyn (2001)).

Our aim is to compare a larger number of transition economies which restricts us to use country-level data rather than taking firm-level data, so that we can only have crude measures of the incentive effects we seek to explain.

Dependent variables: To examine the aggregate effects on growth, we take real GDP growth (GDP) as a first dependent variable. Using growth rates rather than output levels is the more appropriate approach in a panel context as argued by Berg et al. (1999), and in doing so we follow most other studies examining the association between economic performance and structural reforms in transition economies (e.g. Sachs (1996), Selowsky and Martin (1997) or Fischer et al. (1997)). All transition countries experienced a substantial output collapse at the start of the transition and in 2000 only five countries[10] have returned to higher output levels when compared to 1989 (EBRD (2001)). The evolution of output growth differs considerably across country groups (see Table 6.15 in the appendix to this chapter). While the CEEC and Baltics on average returned to positive growth by 1994, the CIS states on average experienced output declines until 1996.

We are further interested in explaining efficiency changes, so we need measures of productivity in the economy. The most obvious measure is total factor productivity growth and can be described as the sum of labour and capital growth plus a residual representing technical progress. Since reliable data on capital stocks in transition countries are particularly scarce, we take changes in labour productivity (Y) as our second dependent variable. Labour productivity as the ratio of total output to labor employed correlates with total factor productivity and thus represents a reasonable and popular proxy (e.g. Bevan et al. (1999), Earle and Estrin (1997), Doyle et al. (2001)). As labour productivity depends both on defensive restructuring (e.g. cost cutting through labour shedding) and active restructuring (e.g. higher sales volumes), we find it well reflects incentive effects to reorganise production (Djankov and Hoekman (2000)).[11]

davia, Poland, Romania, Russia, the Slovak Republic, Slovenia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

[10]These are Albania, Hungary, Poland, the Slovak Republic and Slovenia.

[11]In our sample, labour productivity declined on average during 1992-94. Thereafter, changes were positive with little variation across country groups.

Explanatory variables: We include basic macroeconomic variables commonly used in growth regressions. As we are testing for the influence of institutional reforms on economic performance, our regressions comprise variables that reflect both competition and hardening of budget constraints. Information on the descriptive statistics are presented in Table 6.16 in the appendix to this chapter.

General macroeconomic variables:

LNINF, the natural logarithm of inflation to represent policies of macroeconomic stabilisation.

GOV, government expenditure as a percentage of GDP as a fiscal policy indicator measuring the role of the government in economic activity. The effects on growth may be expected to consist either of crowding out or of a demand stimulus.

INV, gross domestic investment as a percentage of GDP. A wide range of growth studies include this measure in growth regressions (Levine and Renelt (1992)). This allows us to consider factor input explanations of economic growth.

Variables reflecting competition and hardening of budget constraints:

PRICE, the number of goods with administered prices in the *EBRD*-15 basket[12], indicating the degree of price liberalisation. We expect the coefficient of this variable to be negative, since administered prices create an obstacle to competition.

TARIFF, tariff revenues, as a percentage of imports. Tariff revenues include all revenues from international trade. Imports are merchandised goods. We expect the sign of the regression coefficient to be negative. We hypothesise that increased competition from abroad forces unprotected domestic firms to restructure in order to survive in the market.

BAD LOANS, the share of non-performing loans in total loans. Soft bank credits are, according to Kornai (2001a), the most important transmission mechanism for softening a budget. While Schaffer (1998) argues against the use of bad loans as an indicator for budget softness on the grounds of distorted reporting policies of banks, in the absence of a better indicator, we prefer to include bad loans as an element of budget softness and expect to find a negative coefficient.

SUBSIDIES, the share of budgetary transfers to firms and households in GDP, excluding social transfers. Again, Schaffer (1998) rejects the argument that budgetary subsidies are more actively used to help distressed firms in transition economies than in developed countries, since they frequently relate

[12]The basket includes flour/bread, meat, milk, gasoline, cotton, textiles, shoes, paper, cars, television sets, cement, steel, coal, wood, rents, and inter-city bus service.

to regulated sectors in both transition economies and developed countries. As we find evidence that budgetary subsidies in the slow reformers are larger and in fact could relate to budget softness, we include SUBSIDIES as an indicator for budget softness in our regressions.

TAX, the ratio of effective collection of social security taxes over total labor income in the economy, divided by the statutory social security tax rate. We interpret this variable as a proxy for the overall efficiency of a country's tax collection. Here, Schaffer (1998) argues that tax arrears are the main route by which budget constraints are softened in the transition economies. We expect the sign to be positive.

Additionally, private sector share in GDP is taken as a measure of the size of the new sector as opposed to the old, state owned sector. The use of private sector share allows us to incorporate structural changes in the economy, i.e. the destruction of certain sectors of the economy and creation of new ones.

To incorporate the inflow of foreign capital, knowledge and technology, we add foreign direct investments per capita into our regression.

A glance at Table 6.16 in the appendix to this chapter reveals that all explanatory variables representing macroeconomic stabilisation or the building-up of an environment to promote market economic behaviour have improved over time. Inflation rates drop from three- (and even four-) digit levels to two-digit levels, and the relative size of the public sector declines. In general, indicators representing liberalisation of the economy by freeing prices and opening the country to foreign trade and hardening of budget constraints show steady progress towards market-oriented practices. The amounts of bad loans and subsidies diminish, tax systems become more efficient, price and trade liberalisation progresses, and the private sector ascends in importance.

EBRD transition indicators:

In Figure 5.1 we already indicated the positive association between economic growth and the *EBRD* transition indicators. We have a closer look at this association before turning to the empirical testing to identify specific factors that might influence real GDP and productivity growth.

The *EBRD* annual transition indicators for enterprise development cover the success of large- and small-scale privatisation and enterprise restructuring. Markets are evaluated in terms of price liberalisation, competition policy, and functioning of trade and the foreign exchange system. The effectiveness of financial institutions is broken into two categories: banking reform and interest rate liberalisation, and liberalisation of security markets and non-financial institutions. We take the average of the sum over these indicators INDIC of the years 1994-2001.

5.2.3 Model specifications

At first we illustrate the association between institutional reforms and progress in transition by using EBRD transition indicators. Following Sachs (1996), we apply simple cross-country regression analysis of the form

$$Growth_i = a + b(INDIC_i) + \epsilon_i$$

where growth is average annual growth in real GDP from 1994 to 2001, and INDIC is the average of the sum of the transition indicators of the EBRD in 1994-2001.[13]

We next use our variables to detect the impact of institutional reform in the data. In the absence of a comprehensive theoretical model to guide empirical work on transition economies, we confront a risk of misspecifying the regression model by omitting relevant variables. A reasonable way to overcome this problem is to include country-dummies that control for unobserved country-specific effects. Here, we use panel analysis, which allows us to consider more observations given the short time period and the limited number of transition economies we could use due to problems of data availability. We take real GDP growth (GDP) and labour productivity (Y) as a function of reforms for implementing a more competitive environment and run several regressions to test for the robustness of the results.

We start by testing the influence of our variables on real GDP growth:

$$\begin{aligned} GDP_{t,i} = \quad & a_0 + a_1 LNINF_{i,t} + a_2 GOV_{i,t} + + a_3 INV_{i,t} \\ & + a_4 TARIFF_{i,t} + a_5 PRICE_{i,t} + a_6 SUBSIDIES_{i,t} \\ & + a_7 BAD\ LOANS_{i,t} + a_8 TAX_{i,t} + \epsilon_{i,t} \end{aligned}$$

We consider country-specific conditions using a fixed-effects model for the estimation of real GDP growth. The use of country-specific dummies allows us to account for initial conditions. Furthermore, we include a variable, GDP per capita in 1992, as a proxy for initial conditions. We then apply a random-effects (as opposed to fixed-effects) model.[14] The incorporation of various approaches allows us to test the robustness of the results.

We next add lagged values of inflation and government expenditures to take account of long-term effects of macroeconomic stabilisation and state involvement in the economy. In a further step, we incorporate the dependence of economic growth on reforms in the private as opposed to the state sector. Moreover, we include foreign direct investment per capita in our regressions.

[13] EBRD transition indictors were first provided in 1994.

[14] We apply a fixed-effects model in the case where the null hypothesis (i.e. coefficients are the same) of the Hausman specification test could be rejected.

As noted, competition and supporting institutions can exert influence on productivity changes. We attempt to illustrate this interrelation to get a glimpse of the determinants of changes of labour productivity. We apply a fixed-effects model and use the following equation:

$$\begin{aligned} Y_{t,i} = \quad & a_o + a_1 TARIFF_{i,t} + a_2 PRICE_{i,t} + a_3 SUBSIDIES_{i,t} \\ & + a_4 BAD\ LOANS_{i,t} + a_5 TAX_{i,t} + a_6 INV_{i,t} + \epsilon_{i,t}. \end{aligned}$$

5.3 Empirical results

5.3.1 The EBRD transition indicators

Our cross-country estimation of institutional reform and growth updates in a slightly modified version[15] the result by Sachs (1996) that economic growth is positively and significantly correlated with reform progress:

$$\begin{array}{rcccc} Growth(1994-2001) & = & -3.71 & + & 0.24(Indic) \\ & & (-1.48) & & (2.13) \end{array}$$

with $t-statistics$ in parentheses, $R^2 - adjusted = 0.14$, and 23 observations.

In the next part we have a close look at the specific areas of reforms. Progress in the various areas of reforms presented in the *EBRD* annual *Transition Reports* according to country groups is illustrated in Figure 5.2. Achievements of reforming the former centrally planned economies do not only vary across countries (in general, central and eastern European countries and the Baltics outperform countries in southeastern Europe and the CIS) but advances in the transition process also vary considerably across all reform dimensions. Overall, the most reforms have been achieved in the fields of market and trade liberalisation, small-scale privatisation and price liberalisation. Reforms, in contrast, show less progress in the area of governance and enterprise restructuring, in the enforcement of competition policy, and in the banking and securities markets. Shortfalls in these areas point out the difficulty and complexity of hardening budget constraints and fostering competition as the category "governance and enterprise restructuring" reflects the persistence of SBCs and the criteria for competition policy assesses the competitiveness of market environment in terms of e.g. reducing abuses of market power or breaking up dominant conglomerates.

The indicators suggest that establishment of institutions to support market economic behaviour is likely the most challenging and complex task faced by transition countries.

[15] Instead of summing up the subindexes of the latest year, we take the average sum of subindexes from 1994-2001. Thus, we take into consideration the progress in reforms over the last years.

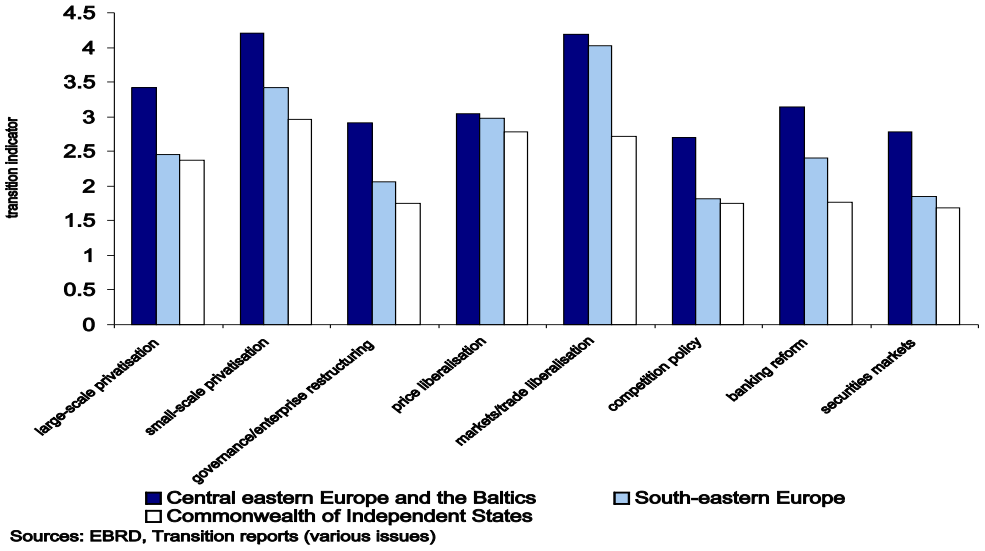

Figure 5.2: Progress in core areas of transition

5.3.2 Institutions and growth

We now examine the association between institutions to support market economic behaviour and GDP growth in transition countries more closely. To check for the robustness of the results we apply two approaches commonly used in growth regressions on transition economies. First, we use a fixed-effects model to control for unobserved country-specific differences (e.g. initial conditions) in growth rates by including dummy variables for each country. Second, we include a variable capturing initial conditions by adding 1992 GDP per capita[16] and apply a random-effects model. These cross-country time-series results are summarised in Tables 6.17 and 6.18 in the appendix to this chapter.

The results of the macroeconomic variable we include in our regressions on GDP growth confirm that stabilisation reflected by a moderate inflation rate is an essential condition for economic growth. Furthermore, we control for government expenditures and investment ratios. Following Barro's argument that "big government is bad for growth" (Barro (1997, p. 26)), we assume a large government influences growth negatively through crowding-out effects or distorting taxes.

More puzzling perhaps is the lack of a significantly positive association

[16]We use per capita income as it was in 1992 because data for earlier years is very incomplete. Income in 1992 should still reflect differences in starting conditions.

between investment and growth. According to standard growth theory, domestic investment should be the major engine of long-term growth (Levine and Renelt (1992)). Results for transition economies (e.g. Havrylyshyn et al. (1998)), however, indicate that reallocation of resources and efficiency improvements, rather than new investment, are the key stimuli for early growth. These findings conform with other empirical work on transition economies mentioned above.

We next analyse for the impact of various reform components on economic growth. We include two variables (PRICE and TARIFF) to reflect the extent of economic liberalisation. PRICE has mostly a negative sign and is not significant. As argued e.g. by Havrylyshyn et al. (1998), price liberalisation can have an initial destructive effect where enterprises face tough competition and have not yet adjusted to the new environment. The findings for TARIFF could imply that import competition at this stage of transition is not a suitable substitute for domestic competition. They also suggest that the causal link we assumed to exist between reduced tariff revenues and economic performance via restructuring is not present here. Our measure of import competition could also be too imprecise. To account for competition from abroad, the use of a measure of import penetration would likely improve accuracy. However, this approach would force us to work with less aggregated, industry-level data. The lack of significance of internal and external liberalisation might also indicate that those measures have to be complemented by a hardening of budget constraints to influence economic growth.

We now add variables to account for the prevalence of SBCs. Subsidies bear a positive sign and are significant in the first regressions. Generally, subsidies to loss-making, inefficient firms have been considerably reduced in transition countries. Schaffer (1998) claims that only few sectors receive budgetary subsidies, and, in general, are insufficient to soften the budget constraints of firms. As subsidies are the most straightforward and visible way to soften budget constraints, it is hardly surprising that governments announce their intent to reduce them in conjunction with official commitments to market economic reforms (Kornai (2001a)).[17] Bad loans have a negative coefficient sign and are highly significant and robust to variations in the model specification. This result confirms our expectations that the banking sector is an important, more indirect channel through which budget constraints are softened. As noted, soft credits are frequently considered the most important transmission mechanism of SBCs (Kornai (2001a)). Ineffi-

[17]Financial support from the IMF was generally conditioned on stabilisation and reform efforts (IMF (2000)). Presumably, this requirement was a reason governments chose to cut subsidies to loss-making firms right at the beginning of the transition process.

cient firms receive bank credits they are unable to pay back, so a higher share of nonperforming loans is indicative of a SBC environment.[18] Taxes turn out to be weak to variations of the model. The coefficient changes sign, but is not statistically significant. This may reflect multicollinearity (see below), but in any case, the result neither confirms our expectations nor Schaffer's (1998) argument. It may also carry implications independent of the possibility that budget constraints via tax arrears does not exist in the countries of our sample. A more convincing argument, perhaps, is that the proxy variable only partially represents poor tax collection and fails to capture fully the extent to which taxes are not collected.

As explained above, we control for initial conditions in the random-effects model by including 1992 GDP per capita. The coefficient is not significant in all specifications and even changes sign. The negative sign, in accord with the convergence hypothesis, may reflect the fact that poor countries are likely to grow faster (Barro (1997)). The convergence effect could also be reduced because higher GDP per capita in 1992 would denote favourable starting conditions, e.g. less distorted production structures.

We now take lagged values for inflation and government expenditures to test for the long-term effects of macroeconomic stabilisation and the diminishing involvement of the state. For inflation, the coefficients remain negative, although the negative effect of high inflation on economic growth is reduced. A lagged value of government expenditures, in contrast, shows a positive sign. This could indicate the provision of public goods supports for economic growth or a demand stimulating effect. As can be inferred from Table 6.20 in the appendix to this chapter, variables of two successive years are highly correlated. To test for robustness, we run regressions that only include lagged values. While the effects are stronger, inflation in $t-1$ remains negative and government expenditures in $t-1$ positive.

Private ownership is an essential element of any market economy. Transition countries have made substantial progress in transferring property rights from the state to the private sector. However growth-enhancing effects from privatisation can be ambiguous. Experience shows[19] that higher efficiency and deep restructuring of firms are not simply the result of transfer of ownership, but a change in managerial incentives. New incentives are best achieved by creating a competitive environment and hardening the budget constraints

[18] Dewatripont and Maskin (1995) show that the likelihood of soft budget constraint is higher if credit markets are centralised and uncompetitive. Since nontransparent credit markets are typical in many transition countries, one can assume that soft bank credits are important in softening the budget constraints of firms.

[19] Nellis (1999) and Stiglitz (1999) provide descriptions of national privatisation experiences, and particularly failed programmes.

of firms. Private sector share as a explanatory variable turns out to have no significant effect on growth (results not reported). Again, this is in line with the findings of empirical studies mentioned in Havrylyshyn (2001).

Our variable of foreign direct investment gives weak, i.e. insignificant, results for foreign direct investment. They are not reproduced in the tables. This result echoes the observation of Havrylyshyn et al. (1998) that foreign direct investment is not as effective a stimulus for economic growth as generally argued. Foreign direct investment correlates with institutional reforms, so the causality might be reversed here, i.e. better performing economies are more likely to attract foreign direct investment than poorly performing economies.

These results overall are largely robust to model variation. The variables reflecting competition and SBCs are not strongly correlated with each other, i.e. the variables do not capture the same developments. As far as the efficiency of the tax system is concerned, the variable is strongly correlated with government expenditure and initial GDP per capita. To account for this, we test several variations of the initial model. The exclusion of the variable TAX, for instance, has no effect on the reported outcomes.

In summary, our first results, reflecting the effect of macroeconomic conditions on growth, confirm the findings of other empirical studies on economic performance in transition countries. With regard to liberalisation and further reforms, the outcome of our regression analyses are less clear when compared to other studies. Again, the main difference between our model and the model used by other authors is that our approach looks directly into the data on transition economies rather than working with aggregated measures of institutional reforms. Separating reform components, however, by using various indices could provide less clear-cut results and might just represent a slice of a complex and multidimensional transition process. Several authors (e.g. Dewatripont and Roland (1996), Gates et al. (1996)) argue that strong complementarities between reform components might exist. Thus, the picture obtained by looking at specific reforms measures possibly neglects the necessity of implementing a comprehensive reform package. In this way, a single reform index might capture important interlinkages among reform measures.

5.3.3 Institutions and productivity

In this analysis, we examine the association between productivity and reform variables. We present some simple econometric evidence on the determinants of changes of labour productivity. We have estimated the association between competition and productivity using a fixed-effects model. Table 6.19 in the

appendix to this chapter summarises the regression results.

Our regressions find robust results for subsidies and bad loans. Both variables have a negative coefficient sign and are statistically significant. The broad picture of subsidies and bad loans thus supports our hypothesis that restrictions of competition via soft budget constraints effect productivity, and that the hardening of budget constraints contributes positively to productivity growth.

As in the growth regressions, tariffs and tax efficiency show a positive, but insignificant, association with Y. Price liberalisation and investment, surprisingly perhaps, had almost no impact on labour productivity. Finally, using the variable for foreign direct investment per capita to reflect foreign ownership and the inflow of knowledge and technologies from abroad has no effect on Y (results not reported).

5.4 Concluding remarks

All empirical work on transition economies suffers from data problems and insufficient guidance from economic theory. Nevertheless, this exploration of how institutional reforms affect economic performance yields several interesting and robust results. Cross-country regression analysis using the transition indicators by the *EBRD* clearly supported our hypothesis that institutional reform or the failure to implement institutions that support free competition is important in driving progress in transition, and explained the divergent performance of countries in central and eastern Europe and the Baltics, and countries in southeastern Europe and the CIS.

The crude measures in our panel analysis, which represent incentives to firms in transition countries, captured to some extent the impact of institutions on growth and productivity. In particular, soft budget constraints via bad loans was found to be negatively related to both growth and productivity.

Kornai (1994) argues that the move from a sellers' to a buyers' market and the enforcement of hard budget constraints are essential factors of economic transformation that lead to economic recovery. In this chapter, we attempted to explain this complex and multidimensional transition process with proxy variables and thus possibly neglected important complementarities between reform measures that may be decisive to the transition process.

The purpose of this chapter was to examine the effects of institutions that support competition on economic performance. Despite the above-mentioned difficulties and limitations of the explanatory power of our regression model, our approach of looking directly into data on transition economies rather than taking aggregated measures of institutional reform provided some in-

sights into the importance of building-up a sound institutional framework to underpin newly emerging market economies.

Chapter 6

Conclusion

This study focused on a unique economic experiment of recent history, the transformation of countries in central, eastern and southeastern Europe and countries of the former Soviet Union to market-based economies. At the start of the transition process in the early 1990s, these countries lacked crucial elements of a market economy. Private ownership was oppressed, the government owned most resources and decided on the type and quantity of a good to be made. A banking sector did virtually not exist, there was no tradition with bankruptcy laws.

Over the last decade, substantial steps towards market-oriented economies have been undertaken by all transition countries. Prices have been liberalised. In most countries, property is now predominately in private hands, the financial sector is developing and competition laws are in place.

Two striking patterns, as discussed in Chapter 5 of this book, have emerged in the transition process. On the one hand, there are now great disparities among transition countries in reforming their economies. On the other hand, achievements vary widely across key dimensions of reforms. Liberalisation and privatisation have been implemented relatively quickly compared to the successes in establishing institutions that are essential to support markets and private enterprises. Apparently, it is easier to liberalise prices and transfer property rights of enterprises than to implement a complex and multidimensional market-supporting framework that includes good corporate governance, competition policy, well-functioning banking laws, regulations and banking competition. The last decade of transition has shown that institutional change takes time and must be underpinned by a strong government commitment to reform. Transition experience has also revealed that supporting administrative, legal and financial institutions are perhaps the most decisive factors for economic performance as they largely shape the outcome of transition. The importance of institutions, as well as comple-

mentarities of reforms, were underestimated a decade ago, and as a result the transition process in many countries has been fraught with unexpected setbacks. The failure of the mass privatisation programmes in such differing economies as Russia and the Czech Republic is a good example.

Despite the challenges ahead, some front-runner transition countries today are preparing to enter the European Union. Although economic and political changes in CEECs are without historical precedent as to scope and the fundamentality of reforms, the southern enlargement of the EU in the 1980s, as argued in Chapter 2, provides several important lessons about the upcoming enlargement.

Greece, Portugal and Spain once initiated profound political and economic changes and therewith cleared the path to EU membership as well. The southern and the eastern enlargement rounds were both predominantly motivated by political reasons to support the newly emerging democracies. The countries in the southern group entered the EU far poorer than the EU average. CEEC will be in a similar situation in future. Comparisons cannot only be drawn with regard to the characteristics of the country groups but both enlargement rounds reveal the weaknesses of the Union's functioning. Before the second enlargement, member states were unable to agree e.g. on decision-making procedures or changes in agricultural policy. Reforms were postponed, half-hearted or marked by compromise. Similarities can be observed in preparing for the enlargement ahead. In this chapter, the question was also raised as to whether entrance into a large single market can exert growth accelerating effects on new members. Southern enlargement shows that catching-up with old member states did not occur automatically. New entrants had to come to terms with structural changes and institutional reforms. While Spain and Portugal started reforms before joining, Greece floundered for nearly a decade after its admission to the EU. The reluctance to reform, led to far worse economic performances than Portugal and Spain. Greece strongly embraced reform in the 1990s, and its subsequent progress has been quite impressive.

This simple comparison provided evidence that structural and institutional reforms are essential for economic improvements. At the heart of reforms is the dissolution of the close government-firm relationship, i.e. imposing hard budget constraints on enterprises and banks, and economic progress can be linked with the extent to which soft budget constraints have been reduced. Research in the next chapters placed emphasis on the problem of soft budget constraints in transition economies. In Chapters 3 and 4 firm-level data was used to test theories on SBCs, while in Chapter 5 a broader framework was applied to test the importance of competition and hardening of budget constraints in economic progress.

Chapter 3 sought to explain empirically the causes of soft budget constraints in two countries in transition, Bulgaria and Romania. Our results strongly suggested that policymakers should draw their attention to the importance of raising competitive pressure in transition economies and seeing through privatisation programmes to harden budget constraints.

Apart from the causes of SBCs discussed in the previous chapter, the existence of strong trade linkages between firms can also softening budget constraints because the state wants to prevent a cascading enterprise failure. Taking an empirical snapshot it was analysed whether trade linkages between firms in transition had already been broken up. For this analysis survey data of transition countries which are at different stages of economic development were used. It is concluded that trade linkages had been reduced in Hungary, one of the most advanced transition countries but that they continued to exist in Romania, a laggard CEEC. Presumably Romania is still susceptible to government bail-outs.

In the last part, a broader framework was applied. Chapter 5 looked at macroeconomic data and examined the effects of competition and its supporting institutions on economic performance. We found additional supporting evidence for the importance of building-up a sound institutional infrastructure for promoting economic progress.

The research theme in this book has been demonstrating the importance of a basic institutional frameworks in determining the outcomes of transition and how profoundly institutions must differ from the apparatus of the former socialist state. Research on transition economies, of course, has wider applications as it contributes to our understanding of the importance of well-functioning institutions in capitalist economies generally. The emergence of soft budget constraints, for example, an obvious problem in transition countries, can, under certain circumstances, provide governments in western economies with incentives to bail out loss-making firms as well.

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Appendix to Chapter 2

		1983	1984	1985	1986	1987	1988	1989
Inflation rate	Greece	20.2	18.4	19.3	23.0	16.4	13.5	13.7
(% change of the	Portugal	25.5	28.8	19.6	11.8	9.4	9.7	12.6
previous year)	Spain	12.2	11.3	8.8	8.8	5.2	4.8	6.8
	EC12	8.6	7.3	6.2	3.8	3.4	3.7	5.3
Government	Greece	-9.2	-9.2	-12.7	-9.4	-11.2	-16.6	-20.7
deficit/surplus	Portugal	-9.5	-11.3	-13.9	-12.0	-10.5	-12.0	-9.7
(in % of GDP)	Spain	-5.1	-5.4	-5.8	-4.6	-3.7	-3.4	-2.4
	EU12	-5.2	-5.5	-5.3	-4.5	-4.4	-3.8	-2.9
Government debt	Greece	36.2	40.7	57.9	58.6	64.5	71.1	76.0
(in % of GDP)	Portugal	.	53.7	53.3	59.9	62.8	64.5	62.4
	Spain	29.8	36.7	41.5	42.2	42.6	38.4	37.6
	EU12	.	43.3	46.0	47.5	48.9	49.8	49.7
Current account	Greece	-4.4	-4.3	-7.8	-4.3	-3.0	-0.7	-4.6
(in % of GDP)	Portugal	-6.3	-2.6	1.5	3.4	1.1	-2.0	0.3
	Spain	-1.5	1.4	1.6	1.6	0.1	-1.0	-2.9
	EU12	0.0	0.2	0.6	1.2	0.7	0.1	0.0

.: Data not available;
Sources: Eurostat (1995), OECD (1991)

Table 6.1: Macroeconomic indicators for southern European countries and the EU12

		1996	1997	1998	1999	2000*
Inflation rate	Czech Republic	9.1	8.0	9.7	1.8	3.9
(% change of the	Estonia	19.8	9.3	8.8	3.1	3.9
previous year)	Hungary	23.5	18.5	14.2	10.0	10.0
	Latvia	17.6	8.4	4.3	2.1	2.6
	Lithuania	24.7	8.8	5.0	0.7	0.9
	Poland	19.9	14.9	11.8	7.2	10.1
	Slovakia	5.8	6.1	6.7	10.5	12.1
	Slovenia	9.9	8.3	7.9	6.1	8.9
	Bulgaria	123.0	1044	18.7	2.6	10.3
	Romania	38.8	154.8	59.1	45.8	45.7
	EC15	2.5	2.0	1.3	1.2	.
Government	Czech Republic	-0.9	-1.7	-2.0	-3.3	-4.9
deficit/ surplus	Estonia	-1.9	2.2	-0.3	-4.6	-0.7
(in % of GDP)	Hungary	-5.0	-6.6	-5.6	-5.7	-3.5
	Latvia	-1.8	0.3	-0.8	-3.9	-3.3
	Lithuania	-4.5	-1.8	-5.9	-8.5	-2.8
	Poland	-3.3	-3.1	-3.2	-3.7	-3.2
	Slovakia	-1.3	-5.2	-5.0	-3.6	-3.6
	Slovenia	-0.2	-1.7	-1.4	-0.9	-1.3
	Bulgaria	-10.4	-2.1	0.9	-0.9	-1.1
	Romania	-3.9	-4.6	-5.0	-3.5	-3.7
	EU15	-5.0	-4.1	-2.3	-1.5	.
Government debt	Czech Republic	13.1	13.0	13.4	15.0	17.5
(in % of GDP)	Estonia	.	7.6	5.8	6.5	5.9
	Hungary	72.8	63.9	62.3	60.7	57.6
	Latvia	14.4	12.0	10.5	13.0	13.2
	Lithuania	.	.	22.8	29.0	28.8
	Poland	51.2	49.8	43.2	44.5	42.5
	Slovakia	24.5	23.7	26.0	28.4	30.4
	Slovenia	22.7	23.2	23.7	24.5	25.1
	Bulgaria	152.5	116.6	100.7	96.6	94.1
	Romania	28.1	27.9	30.6	34.7	31.6
	EU15	73.2	73.1	71.4	69.3	.
Current account	CEE and the Baltics	-5.8	-6.8	-6.8	-6.3	-4.7
(in % of GDP)	South-eastern Europe	-10.0	-9.3	-7.8	-8.2	-9.1
	EU15	1.0	1.5	1.0	0.3	.

.: Data not available, *: Estimates

Sources: EBRD (2001), European Commission (2001c), Eurostat (2001)

Table 6.2: Macroeconomic indicators for CEEC and for the EU15

	1957 -72	1973 -80	1981 -85	1986 -94	since 1995	after enlarge-ment
Germany	4	10	10	10	10	29
Italy	4	10	10	10	10	29
France	4	10	10	10	10	29
Netherlands	2	5	5	5	5	13
Belgium	2	5	5	5	5	12
Luxembourg	1	2	2	2	2	4
United Kingdom	-	10	10	10	10	29
Denmark	-	3	3	3	3	7
Ireland	-	3	3	3	3	7
Greece	-	-	5	5	5	12
Portugal	-	-	-	5	5	12
Spain	-	-	-	8	8	27
Austria	-	-	-	-	4	10
Finland	-	-	-	-	3	7
Sweden	-	-	-	-	4	10
Czech Republic	-	-	-	-	-	12
Estonia	-	-	-	-	-	4
Hungary	-	-	-	-	-	12
Latvia	-	-	-	-	-	4
Lithuania	-	-	-	-	-	7
Poland	-	-	-	-	-	27
Slovakia	-	-	-	-	-	7
Slovenia	-	-	-	-	-	4
Cyprus	-	-	-	-	-	4
Malta	-	-	-	-	-	3
Bulgaria						10
Romania						14
Total votes	17	58	63	76	87	345
Qualified majority	12	41	45	54	62	258
Blocking minority	6	18	19	23	26	91

Sources: partly taken from Winkler (1998), European Commission (2002d)

Table 6.3: Effects of EU enlargement on the Council of Ministers

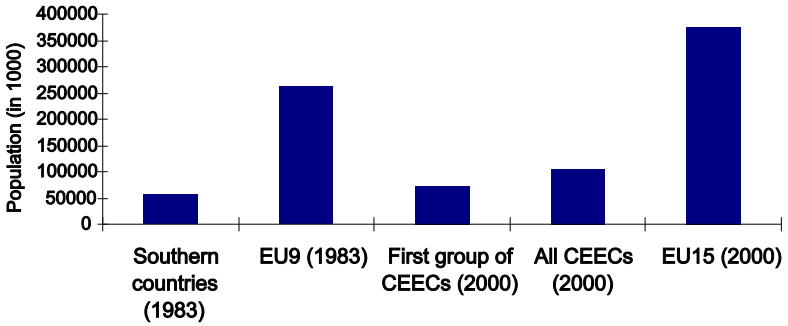

Figure 6.1: Population of southern European countries, CEECs and of the EU (Sources: Eurostat (1995), Eurostat (2002b))

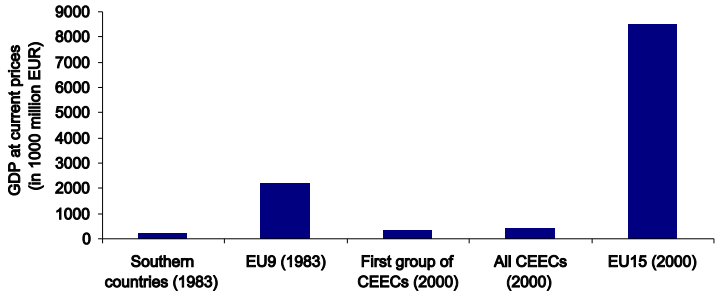

Figure 6.2: Economic size of southern European countries, CEECs and of the EU (Sources: Eurostat (1999), Eurostat (2002b))

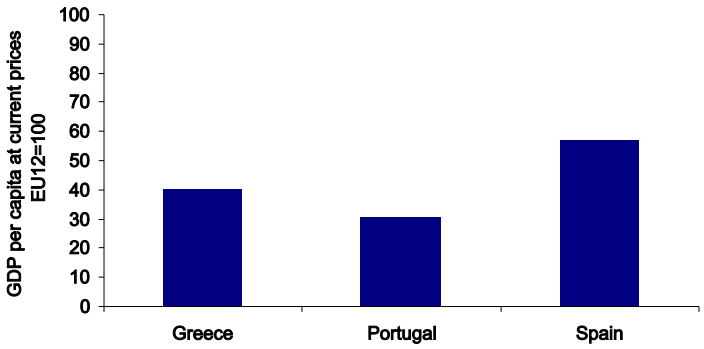

Figure 6.3: GDP per capita in southern European countries in relation to the EU12 in 1987 (Source: Eurostat (1995))

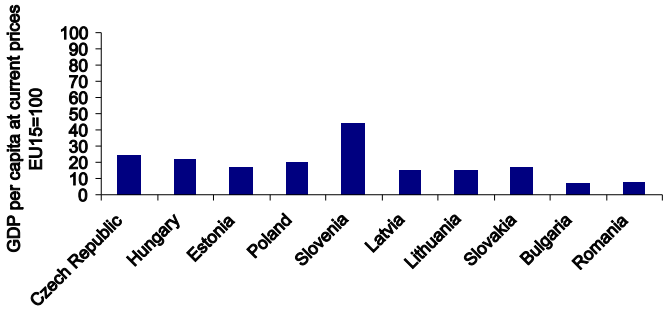

Figure 6.4: GDP per capita in CEECs in relation to the EU15 in 2000 (Source: Eurostat (2002c))

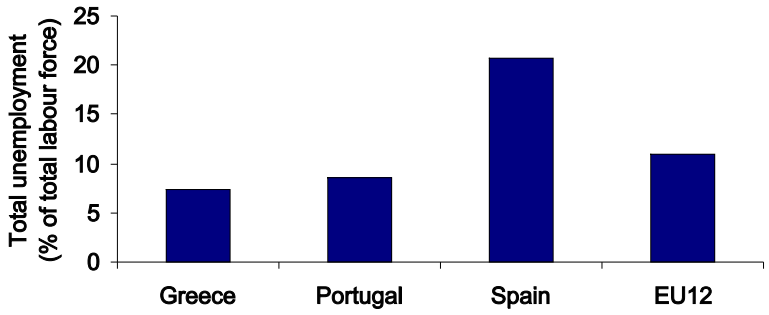

Figure 6.5: Unemployment rate in southern European countries and in the EU in 1987 (Source: OECD (1992))

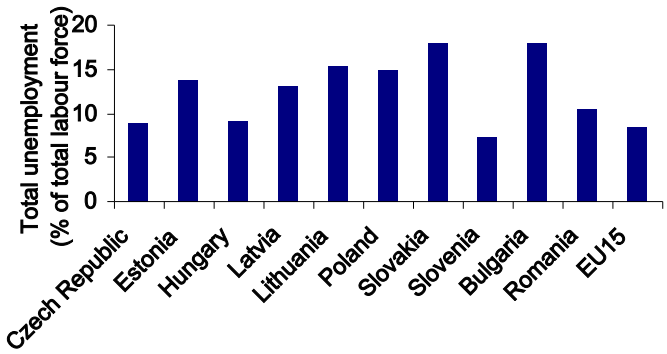

Figure 6.6: Unemployment rate in CEECs and in the EU in 2000 (Sources: EBRD (2001), OECD (2001b))

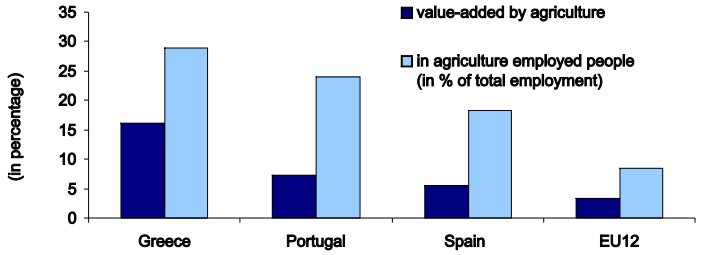

Figure 6.7: Agriculture in southern European countries and in the EU in 1986 (Sources: Eurostat (1995), OECD (1992))

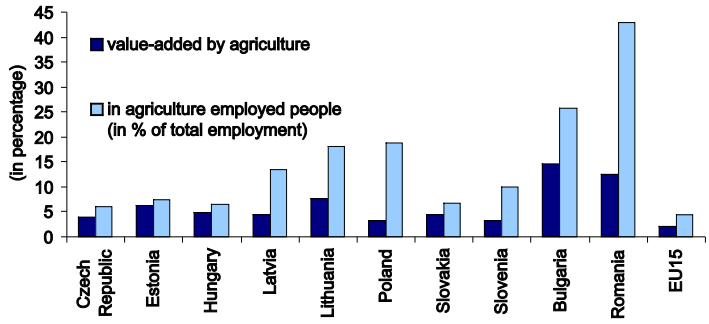

Figure 6.8: Agriculture in CEECs and in the EU in 2000 (Sources: EBRD (2001), European Commission (2001e), Eurostat (2001), OECD (2001b))

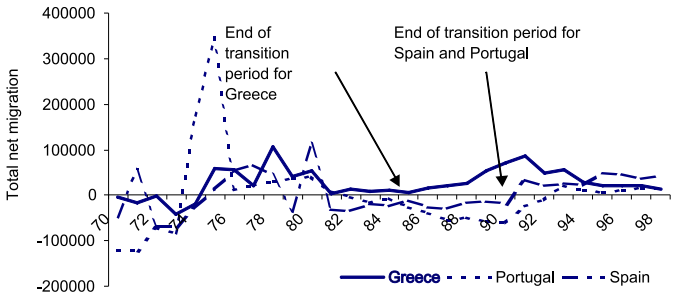

Figure 6.9: Total net migration in southern European countries (1970-1998) (Source: Eurostat (2000a))

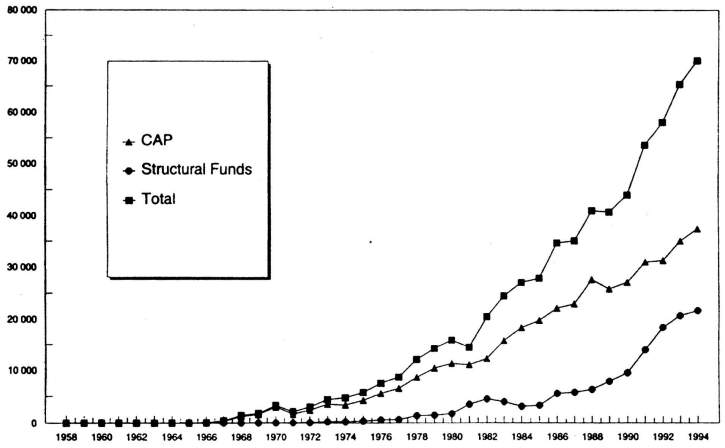

Figure 6.10: EU spending in ECUm from 1958-1994 (Source: Baldwin et al. (1997))

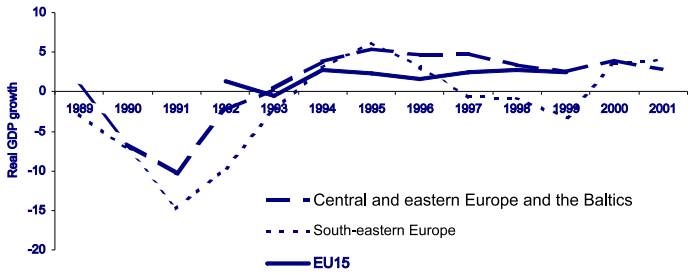

Figure 6.11: Real GDP growth in CEEC and in the EU (1989-2001) (Sources: EBRD (2001), Eurostat (2001))

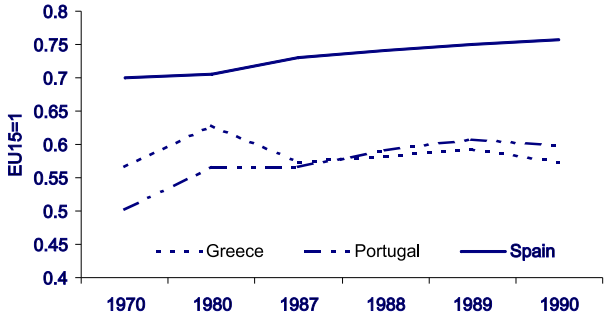

Figure 6.12: Convergence of GDP per capita of southern European countries from 1970-1989 (Source: Eurostat (1999))

Appendix to Chapter 3

Estimation method: Logit model with random-effects Sample period: 1996-1999 Dependent variable: Soft Budget Constraints				
	unrestricted sample		restricted sample	
variables	(1)	(2)	(3)	(4)
constant	-1.0311**	-1.1742**	-0.8368**	-1.200**
	(-10.61)	(-10.11)	(-5.20)	(-5.26)
herfindahl	0.0120	0.0216**	0.0342**	0.0292*
	(1.38)	(2.06)	(2.86)	(1.92)
import	-0.0063	-0.0006	-0.0151*	-0.0087
	(-1.07)	(-0.09)	(-1.64)	(-0.76)
employment	-0.0001	-0.0001	0.0007**	0.0007**
	(-0.51)	(-0.16)	(2.86)	(2.71)
state		0.6221**		-0.1671
		(3.95)		(-0.91)
insiders/		0.2442		-0.2479
cooperatives		(0.93)		(-0.83)
foreign		-0.0370		0.4580
		(-0.16)		(1.26)
municipalities		0.3776		0.2406
		(0.96)		(0.48)
year96[1]	-1.9941**	-2.2116**	2.5671**	2.1319**
	(-13.15)	(-12.26)	(10.84)	(7.59)
year97[2]	-1.1297**	-1.2988**	1.9855**	0.4735*
	(-8.85)	(-8.73)	(8.55)	(1.80)
year99	0.2080*	0.3510**	1.9145**	-0.1201
	(1.92)	(2.93)	(9.64)	(-0.52)
Wald-chi[2]	296.45	277.30	144.67	116.50
$Prob > chi^2$	0.00	0.00	0.00	0.00
no. of obs.	4657	3780	1557	1283
no. of groups	1401	1225	855	738

Notes: * = significant at 10% level, ** = significant at 5% level

[1] : referring to year98 in regression (3)

[2] : referring to year98 in regression (4)

Table 6.4: Logit results for Soft Budget Constraints in Bulgarian firms

Estimation method: Logit model with random-effects Sample period: 1995-1999 Dependent variable: Soft Budget Constraints					
	unrestricted sample			restricted sample	
variables	(1)	(2)	(3)	(4)	(5)
constant	-3.7568**	-4.2896**	0.7057**	0.1849	0.5479*
	(-20.73)	(-19.44)	(2.57)	(0.57)	(1.74)
herfindahl	0.0082**	0.0082**	0.0121**	0.0170**	0.0147**
	(2.83)	(2.58)	(2.85)	(3.49)	(2.98)
import	-0.0012	-0.0018*	-0.0006	-0.0002	-0.0003
	(-1.45)	(-1.91)	(-0.49)	(-0.17)	(-0.21)
employment	-0.0001*	-0.0001	0.0001	0.0002**	0.0003**
	(-1.92)	(-0.91)	(1.10)	(2.13)	(2.22)
state		0.9281**		0.2505	
		(5.69)		(1.08)	
foreign		1.2868**		1.3818**	
		(6.57)		(4.48)	
insiders		-2.5603**		1.1111	
		(-2.32)		(0.57)	
purely					2.8107**
state					(2.03)
purely					0.4037
foreign					(0.90)
year96	-0.2157	-0.2706	-0.3678	-0.5457	-0.4356
	(-1.31)	(-1.48)	(-1.19)	(-1.53)	(-1.22)
year97	-0.1380	-0.2806	-0.3176	-0.7591**	-0.7510**
	(-0.85)	(-1.55)	(-1.04)	(-2.19)	(-2.14)
year98	0.9000**	0.7807**	0.3476	-0.0483	-0.0969**
	(6.19)	(4.74)	(1.25)	(-0.15)	(-0.30)
year99	0.5807**	0.6903**	-1.054**	-1.3138**	-1.2845**
	(3.86)	(4.07)	(-3.84)	(-4.21)	(-4.09)
Wald-chi^2	105.43	140.47	57.75	65.11	53.43
$Prob > chi^2$	0.00	0.00	0.00	0.00	0.00
no. of obs.	8440	6647	1278	983	983
no. of groups	1877	1609	715	550	550

Notes: * = significant at 10% level, ** = significant at 5% level

Table 6.5: Logit results for Soft Budget Constraints in Romanian firms

Estimation method: Logit model with random-effects Sample period: 1996-1999 Dependent variable: Soft Budget Constraints				
	unrestricted sample		restricted sample	
variables	(1)	(2)	(3)	(4)
constant	-1.3385**	-1.4144**	-0.1235	-0.0352
	(-12.98)	(-11.50)	(-0.75)	(-0.17)
herfindahl	0.0095	0.0157	0.0268**	0.0154
	(1.05)	(1.46)	(2.24)	(1.04)
import	-0.0101	-0.0060	-0.0222**	-0.0217**
	(-1.62)	(-0.85)	(-2.48)	(-2.02)
employment	0.0001	0.0001	0.0008**	0.0007**
	(0.30)	(0.42)	(3.45)	(2.89)
state		0.6112**		-0.1066
		(3.78)		(-0.59)
insiders/		-0.1482		-0.7509**
cooperatives		(-0.52)		(-2.53)
foreign		-0.0466		0.2223
		(-0.19)		(0.68)
municipalities		0.1798		-0.2161
		(0.44)		(-0.47)
year96	-1.7392**	-1.9937**	-0.8579**	-0.9330**
	(-11.34)	(-10.94)	(-4.06)	(-3.73)
year97[1]	-1.4057**	-1.6349**	1.0851**	1.1352**
	(-9.90)	(-9.82)	(5.30)	(4.79)
year99	0.2444**	0.3762**	0.7394**	0.7943**
	(2.17)	(3.04)	(4.04)	(3.72)
Wald-chi[2]	272.93	264.38	110.68	95.39
$Prob > chi^2$	0.00	0.00	0.00	0.00
no. of obs.	4657	3780	1557	1283
no. of groups	1401	1225	855	738

Notes: * = significant at 10% level, ** = significant at 5% level

[1] : referring to year98 in regressions (3) and (4)

Table 6.6: Logit results for Soft Budget Constraints in Bulgarian firms with investment-corrected measure

Estimation method: Logit model with random-effects Sample period: 1995-1999 Dependent variable: Soft Budget Constraints				
	unrestricted sample		restricted sample	
variable	(1)	(2)	(3)	(4)
constant	-3.8533**	-4.4456**	0.4607*	-0.1192
	(-20.82)	(-19.44)	(1.73)	(-0.37)
herfindahl	0.0075**	0.0083**	0.0090**	0.0162**
	(2.60)	(2.59)	(2.19)	(3.28)
import	-0.0011	-0.0019**	-0.0004	-0.0007
	(-1.33)	(-1.99)	(-0.37)	(-0.49)
employment	-0.0001	-0.0001	0.0002*	0.0002**
	(-1.23)	(-0.85)	(1.75)	(2.13)
state		0.9934**		0.3584
		(6.00)		(1.52)
foreign		1.2292**		1.3463**
		(6.19)		(4.30)
insiders		-2.5620**		0.7496
		(-2.31)		(0.37)
year96	-0.4589**	-0.4825**	-0.8945**	-0.9728**
	(-2.62)	(-2.47)	(-2.92)	(-2.75)
year97	-0.1066	-0.2400	-0.2291	-0.6060*
	(-0.65)	(-1.29)	(-0.77)	(-1.77)
year98	0.8286**	0.8259**	0.1032	0.0782
	(5.56)	(4.88)	(0.38)	(0.25)
year99	0.8698**	1.0074**	-0.4256	-0.6042**
	(5.77)	(5.86)	(-1.61)	(-2.00)
Wald-chi^2	126.96	168.80	28.28	47.53
$Prob > chi^2$	0.00	0.00	0.00	0.00
no. of obs.	8440	6647	1278	983
no. of groups	1887	1609	715	550

Notes: * = significant at 10% level, ** = significant at 5% level

Table 6.7: Logit results for Soft Budget Constraints in Romanian firms with investment-corrected measure for SBC

Estimation method: Logit model with random-effects Sample period: 1996-1999 Dependent variable: Soft Budget Constraints				
	unrestricted sample		restricted sample	
variables	(1)	(2)	(3)	(4)
constant	-3.0367**	-1.3396**	-0.9949**	-0.9624**
	(-19.95)	(-10.74)	(-5.91)	(-4.64)
herfindahl	0.0063	0.0112	0.0290**	0.0165
	(0.69)	(1.03)	(2.38)	(1.09)
import	-0.0101	-0.0063	-0.0223**	-0.0214**
	(-1.61)	(-0.89)	(-2.49)	(-2.00)
employment	0.0002*	0.0002**	0.0007**	0.0006**
	(1.94)	(2.14)	(2.70)	(2.53)
state		0.5824**		-0.1026
		(3.58)		(-0.57)
insiders/		-0.2526		-0.7373**
cooperatives		(-0.879)		(-2.48)
foreign		0.0608		0.2097
		(0.25)		(0.63)
municipalities		0.0974		-0.2063
		(0.23)		(-0.45)
market	-0.0170**	-0.0191**	0.0101	0.0035
shares	(-3.53)	(-3.52)	(1.54)	(0.50)
year97	0.3377**	-1.6324**	0.8551**	0.9201**
	(2.10)	(–9.75)	(4.05)	(3.68)
year98[1]	1.7495**	-1.9834**	1.9377**	2.051**
	(11.31)	(-10.84)	(9.05)	(8.22)
year99	2.0042**	0.3786**	1.5913**	1.7150**
	(13.62)	(3.03)	(8.33)	(7.74)
Wald-chi[2]	278.70	268.55	112.07	94.86
$Prob > chi^2$	0.00	0.00	0.00	0.00
no. of obs.	4650	3777	1553	1281
no. of groups	1401	1225	852	736

Notes: * = significant at 10% level, **= significant at 5% level

[1] : referring to year96 in regression (2)

Table 6.8: Logit results for Soft Budget Constraints in Bulgarian firms with investment-corrected measure for SBC and market shares

Estimation method: Logit model with random-effects Sample period: 1996-1999 Dependent variable: Soft Budget Constraints				
	unrestricted sample		restricted sample	
variables	(1)	(2)	(3)	(4)
constant	-2.8559**	-3.0830**	-0.9926**	-0.0240
	(-18.61)	(-15.88)	(-5.87)	(-0.12)
herfindahl	0.0030	0.0086	0.0289**	0.0157
	(0.33)	(0.80)	(2.35)	(1.02)
import	-0.0116*	-0.0079	-0.0222**	-0.0217**
	(-1.84)	(-1.11)	(-2.49)	(-2.02)
employment	0.0002*	0.0002*	0.0007**	0.0007**
	(1.76)	(1.69)	(2.58)	(2.58)
state		0.5347**		-0.1060
		(3.27)		(-0.59)
insiders/		-0.4035		-0.7614**
cooperatives		(-1.39)		(-2.54)
foreign		0.1728		0.2434
		(0.70)		(0.72)
municipalities		-0.0393		-0.2239
		(-0.09)		(-0.49)
market	-0.0651**	-0.0693**	0.0078	-0.0095
shares	(-5.84)	(-5.63)	(0.48)	(0.53)
squared	0.0007**	0.0007**	0.0001	0.0002
market shares	(4.97)	(4.72)	(0.15)	(0.78)
year97[1]	0.3219**	0.3295*	0.8553**	-0.9172**
	(1.99)	(1.71)	(4.05)	(-3.66)
year98	1.7504**	1.9644**	1.9384**	1.1332**
	(11.30)	(10.73)	(9.05)	(4.78)
year99	1.9851**	2.3179**	1.5922**	0.7971**
	(13.48)	(13.13)	(8.33)	(3.73)
Wald-chi^2	291.04	277.09	111.94	94.73
$Prob > chi^2$	0.00	0.00	0.00	0.00
no. of obs.	4650	3777	1553	1281
no. of groups	1401	1225	852	736

Notes: * = significant at 10% level, **= significant at 5% level
[1] : referring to year96 in regression (4)

Table 6.9: Logit results for Soft Budget Constraints in Bulgarian firms with investment-corrected measure for SBC and market shares (levels and squared)

Estimation method: Logit model with random-effects Sample period: 1995-1999 Dependent variable: Soft Budget Constraints				
	unrestricted sample		restricted sample	
variable	(1)	(2)	(3)	(4)
constant	-3.8544**	-4.4495**	0.5689**	-0.0724
	(-20.53)	(-19.30)	(2.11)	(-0.22)
herfindahl	0.0072**	0.0086**	0.0077*	0.0159**
	(2.48)	(2.63)	(1.90)	(3.20)
import	-0.0011	-0.0019*	-0.0007	-0.0008
	(-1.29)	(-1.93)	(-0.60)	(-0.59)
employment	-0.0001	0.0001	0.0001	0.0002*
	(-0.50)	(0.12)	(1.34)	(1.76)
state		0.9492**		0.3715
		(5.69)		(1.56)
foreign		1.2251**		1.3368**
		(6.16)		(4.26)
insiders		-2.4746**		0.7746
		(-2.23)		(0.39)
market	-0.0303**	-0.0512**	0.0602*	0.0650*
shares	(-2.55)	(-2.82)	(1.71)	(1.65)
year96	-0.4430**	-0.4526**	-0.9519**	-1.0518**
	(-2.50)	(-2.29)	(-3.08)	(-2.94)
year97	-0.0503	-0.1747	-0.2990	-0.6911**
	(-0.30)	(-0.94)	(-0.99)	(-1.99)
year98	0.8658**	0.8971**	0.0321	0.0141
	(5.71)	(5.21)	(0.12)	(0.04)
year99	0.9146**	1.0689**	-0.4828*	-0.6670**
	(5.98)	(6.14)	(-1.81)	(-2.17)
Wald-chi^2	127.28	169.69	30.63	49.90
$Prob > chi^2$	0.00	0.00	0.00	0.00
no. of obs.	8253	6563	1234	971
no. of groups	1831	1586	692	541

Notes: * = significant at 10% level, ** = significant at 5% level

Table 6.10: Logit results for Soft Budget Constraints in Romanian firms with investment-corrected measure for SBC and market shares

Estimation method: Logit model with random-effects Sample period: 1995-1999 Dependent variable: Soft Budget Constraints				
	unrestricted sample		restricted sample	
variables	(1)	(2)	(3)	(4)
constant	-3.8544**	-4.4496**	0.5702**	-0.0710
	(-20.53)	(-19.30)	(2.12)	(-0.21)
herfindahl	0.0072**	0.0086**	0.0077*	0.0158**
	(2.48)	(2.63)	(1.89)	(3.17)
import	–0.0011	-0.0019*	-0.0007	-0.0008
	(-1.29)	(-1.93)	(-0.61)	(-0.59)
employment	-0.0001	0.0001	0.0001	0.0002*
	(-0.50)	(0.12)	(1.30)	(1.71)
state		0.992**		0.3716
		(5.69)		(1.56)
foreign		1.225**		1.3369**
		(6.16)		(4.26)
insiders		-2.4746**		0.7771
		(-2.23)		(0.39)
market	-0.0304**	-0.0512**	0.0677	0.0750
shares	(-2.55)	(-2.82)	(1.37)	(0.90)
squared	0.0001**	0.0001**	-0.0002	-0.0004
market shares	(2.34)	(2.36)	(-0.24)	(-0.14)
year96	-0.4430**	-0.4526**	-0.9524**	-1.0511**
	(-2.45)	(-2.29)	(-3.08)	(-2.93)
year97	-0.0503	-0.1747	-0.3018	-0.6949**
	(-0.30)	(-0.93)	(-1.00)	(-1.99)
year98	0.8659**	0.8971**	0.0284	0.0090
	(5.72)	(5.21)	(0.10)	(0.03)
year99	0.9146	1.0690**	-0.4849*	-0.6698**
	(5.98)	(6.14)	(-1.82)	(-2.17)
Wald-chi^2	127.30	169.70	30.99	49.88
$Prob > chi^2$	0.00	0.00	0.00	0.00
no. of obs.	8253	6563	1234	971
no. of groups	1831	1586	692	541

Notes: * = significant at 10% level, ** = significant at 5% level

Table 6.11: Logit results for Soft Budget Constraints in Romanian firms with investment-corrected measure for SBC and market share (squared and levels)

nace-code for manufacturing industries	Bulgaria		Romania	
	firms	in %	firms	in %
15: food products/beverages	296	19.27	463	20.19
16: tobacco products	26	1.69	1	0.04
17: textiles	154	10.03	227	9.80
18: wearing apparel, dressing, dyeing	186	12.11	245	10.68
19: tanning, dressing of leather	51	3.32	113	4.93
20: wood/products of wood, cork	32	2.08	111	4.84
21: pulp, paper, paper products	26	1.69	30	1.31
22: publishing, printing	34	2.21	91	3.97
23: coke, refined petroleum products	4	0.26	11	0.48
24: chemicals, chemical products	71	4.62	79	3.44
25: rubber, plastic products	35	2.28	66	2.88
26: other non-metallic and mineral products	79	5.14	122	5.32
27: basic metals	48	3.12	63	2.75
28: fabricated metal products	92	5.99	149	6.50
29: machinery and equipment	152	9.90	168	7.11
30: office machinery, computers	6	0.39	11	0.48
31: electrical machinery, apparatus	66	4.30	47	2.05
32: radio, television	27	1.76	21	0.91
33: medical, precision instruments	20	1.30	26	1.13
34: motor vehicles, trailers, semi-trailers	21	1.37	51	2.22
35: other transport equipment	23	1.50	38	1.65
36: furniture	82	5.34	136	5.93
37: recycling	5	0.33	24	1.05
Total	1536	100	2293	100

Source: own calculations using AMADEUS Data

Table 6.12: Distribution of firms by industries in the sample

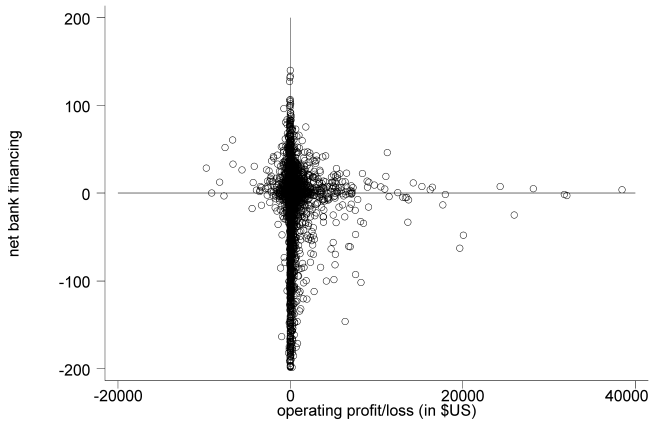

Figure 6.13: Net bank financing in Bulgarian firms

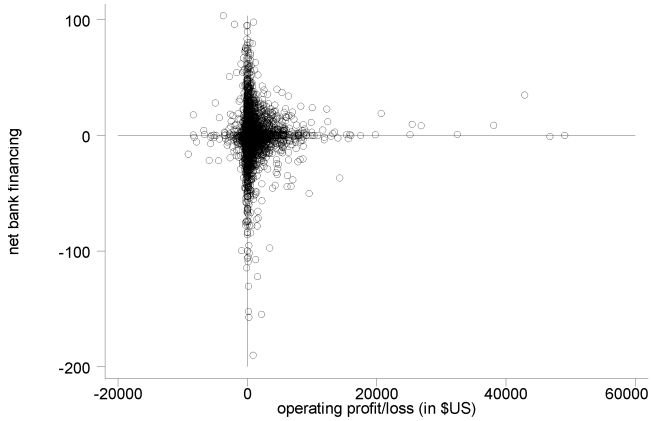

Figure 6.14: Net bank financing in Romanian firms

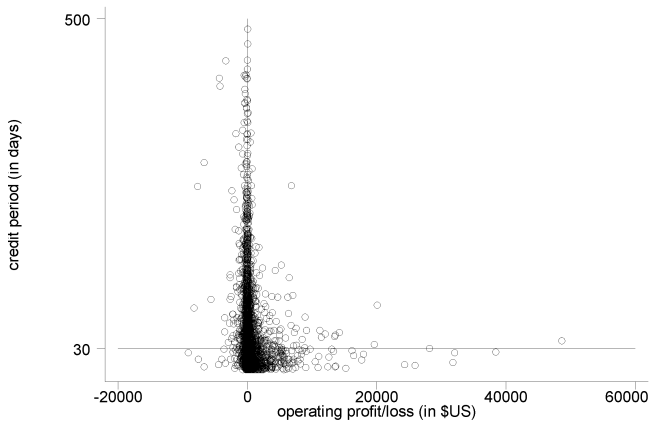

Figure 6.15: Credit periods in Bulgarian firms

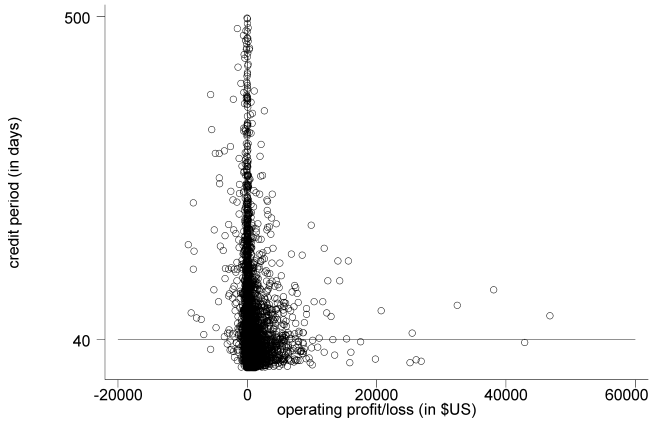

Figure 6.16: Credit periods in Romanian firms

Appendix to Chapter 4

Dependent variable	overdue liabilities		overdue liabilities to other firms	
	(1)	(2)	(3)	(4)
constant	-1.0448	-0.8628	-1.8710**	-1.7237**
	(-1.60)	(-1.27)	(-2.33)	(-2.09)
employment	-0.0003	-0.0001	-0.0001	0.0002
	(-0.76)	(-0.16)	(-0.07)	(0.33)
	(-0.0001)	(-0.0001)	-0.0001	(0.0001)
financial	1.3405**	1.4103**	0.8651*	0.9318*
difficulties	(2.62)	(2.67)	(1.71)	(1.80)
	(0.3341)	(0.3515)	(0.1991)	(0.2139)
overdue	0.5935	0.7717	1.1202	1.3420
receivables^{+}	(0.85)	(1.04)	(1.34)	(1.53)
	(0.1479)	(0.1923)	(0.2578)	(0.3081)
state-owned		-0.8515		-0.5200
firms		(-0.87)		(-0.54)
		(-0.2122)		(-0.1194)
privatised		-0.4666		-0.6156
firms		(-0.78)		(-1.01)
		(-0.1163)		(-0.1413)
export		-0.4335		-0.1665
orientation		(-0.74)		(-0.28)
		(-0.1067)		(-0.0377)
no. of obs.	78	78	78	78
χ^2	8.43	9.92	5.94	7.08
$Prob > \chi^2$	0.038	0.13	0.115	0.313

Estimation method: Logit model

Notes: * = significant at 10%, ** =significant at 5%,

$^{+}$ in regressions (3) and (4) overdue receivables from trade included

t-statistics in the first, marginal effects in parentheses below

Table 6.13: Regression results for Hungary

Dependent variable	overdue liabilities		overdue liabilities to other firms	
	(1)	(2)	(3)	(4)
constant	-1.358**	-1.8912**	-2.5104**	-3.1509**
	(-2.24)	(-2.51)	(-3.05)	(-3.24)
employment	0.0003	0.0001	0.0001	-0.0001
	(1.19)	(0.09)	(0.89)	(-0.01)
	(0.0001)	(0.0001)	0.0001	-0.0001
financial	0.6762	0.1776	0.7709	0.0611
difficulties	(0.85)	(0.18)	(0.97)	(0.06)
	(0.0592)	(0.0171)	(0.1423)	(0.0112)
overdue	2.9165**	3.2090**	3.8938**	4.0157**
receivables^{+}	(3.92)	(3.75)	(4.33)	(4.18)
	(0.2550)	(0.3107)	(0.7186)	(0.7345)
state-owned		2.5664**		2.0737*
firms		(2.20)		(1.87)
		(0.2484)		(0.3793)
privatised		0.4872		1.3149
firms		(0.42)		(0.97)
		(0.0472)		(0.2405)
export		-0.7473		-0.2517
orientation		(-0.53)		(-0.19)
		(-0.0923)		(-0.0485)
no. of obs.	80	80	80	80
χ^2	35.80	42.34	46.05	50.60
$Prob > \chi^2$	0.00	0.00	0.00	0.00

Estimation method: Logit model

Notes: * = significant at 10%, ** = significant at 5%,

$^{+}$ in regressions (3) and (4) overdue receivables from trade included

t-statistics in the first, marginal effects in parentheses below

Table 6.14: Regression results for Romania

Appendix to Chapter 5

	1992	1993	1994	1995	1996	1997	1998	1999	2000
All countries									
mean	-15.06	-7.19	-6.73	-0.43	1.44	2.72	2.85	2.86	5.96
std. dev.	13.15	8.70	11.36	7.33	5.93	6.28	4.52	4.30	3.57
min.	-44.80	-25.40	-31.20	-12.50	-10.90	-11.30	-6.50	-4.40	1.60
max.	2.60	9.60	8.30	13.30	10.50	11.40	10.00	16.00	17.60
CEE and Baltic states									
mean	-10.43	-4.69	1.16	4.04	4.22	5.94	3.67	1.39	4.56
std. dev.	12.49	7.77	5.10	2.67	1.58	3.41	2.43	3.10	1.62
min.	-34.90	-16.20	-9.80	-0.80	1.30	-1.00	-2.20	-3.90	2.20
max.	2.60	3.80	5.30	7.00	6.20	10.40	5.10	5.20	6.90
South eastern Europe									
mean	-7.77	.3.20	4.67	7.50	0.70	-6.67	2.03	2.16	5.07
std. dev.	0.90	5.74	3.31	5.61	10.38	0.49	6.82	5.25	3.16
min.	-8.80	-1.50	1.80	2.10	-10.90	-7.00	-5.40	-3.20	1.60
max.	-7.20	9.60	8.30	13.30	9.10	-6.10	8.00	7.30	7.80
CIS									
mean	-19.97	-11.46	-14.85	-5.40	-0.22	2.92	2.51	4.01	7.12
std. dev.	13.78	7.28	9.32	6.20	6.36	6.31	5.27	4.76	4.34
min.	-44.80	-25.40	-31.20	-12.50	-10.00	-11.30	-6.50	-4.40	1.90
max.	-2.90	-1.20	5.40	6.90	10.50	11.40	10.00	16.00	17.60

Note: CEE and the Baltic states include the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia; South-eastern Europe comprises Albania, Bulgaria and Romania; CIS refers to the countries of the Commonwealth of Independent States

Table 6.15: Descriptive statistics: real GDP growth

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Inflation rate									
mean	718.25	1087.22	1416.97	195.03	92.37	76.47	17.35	29.03	19.99
std. dev	514.19	1372.32	3324.85	265.84	213.46	222.22	18.10	61.35	34.69
Government expenditure									
mean	47.47	44.60	40.24	35.09	34.62	34.71	35.26	35.16	33.35
std. dev	9.59	13.48	10.16	10.02	10.12	10.01	9.47	9.25	9.59
Investment ratio									
mean	21.26	19.11	20.67	20.47	21.73	22.13	22.82	23.39	23.19
std. dev.	8.07	7.50	7.18	6.04	7.76	8.21	8.40	5.74	6.23
Subsidies									
mean	7.08	4.91	4.72	2.75	2.68	2.64	2.33	2.48	2.57
std. dev.	4.17	3.95	4.34	2.16	2.46	2.39	2.26	2.36	3.34
Bad loans									
mean	6.53	17.40	23.17	23.68	19.45	18.07	16.63	15.92	12.97
std. dev.	6.45	13.47	21.38	16.88	13.48	20.67	15.58	12.53	10.86
Tax efficiency									
mean	69.53	64.92	67.94	62.72	64.85	70.10	73.48	76.79	32.50
std. dev.	25.14	25.80	24.95	24.70	22.39	17.04	16.57	10.25	n.a.
Price liberal.									
mean	5.66	5.28	4.83	3.91	3.48	3.22	2.75	2.53	1.83
std. dev.	3.22	2.74	2.87	3.21	2.73	2.71	2.83	3.08	2.76
Tariff revenue									
mean	5.17	4.68	4.88	4.04	3.48	3.48	3.42	2.78	3.71
std. dev.	5.56	4.27	4.35	3.79	2.50	2.50	2.39	2.20	5.18
Private sector share									
mean	21.14	29.32	38.41	45.23	51.82	56.59	57.95	59.09	60.23
std. dev.	11.01	14.66	16.43	16.58	17.36	16.36	16.45	16.52	16.72

Table 6.16: Descriptive statistics: explanatory variables

Estimation method: Fixed-effects model
Sample period: 1992-2000
Dependent variable: real GDP growth

	(1)	(2)	(3)	(4)
lninf	-2.17**	-2.06**	-1.84**	-1.73**
	(-4.46)	(-3.96)	(-3.42)	(-3.03)
lninf (t-1)			-0.14	-0.17
			(-0.21)	(-0.25)
gov	-0.42**	-0.41**	-0.51**	-0.50**
	(-2.57)	(-2.39)	(-2.61)	(-2.44)
gov (t-1)			0.41*	0.41*
			(1.88)	(1.82)
price	-0.02	0.11	0.27	0.36
	(-0.04)	(0.21)	(0.53)	(0.65)
tariff	0.61**	0.62**	0.39	0.40
	(2.18)	(2.01)	(1.29)	(1.23)
bad loans	-0.13**	-0.12**	-0.14**	-0.13**
	(-3.06)	(-2.85)	(-3.17)	(-2.94)
subsidies	0.79**	0.73**	0.77**	0.70*
	(2.29)	(2.00)	(2.18)	(1.90)
tax	0.06	0.08	0.08	0.10
	(0.71)	(0.78)	(1.00)	(0.90)
investment		0.14		0.14
ratio		(0.83)		(0.84)
constant	18.93**	13.29	4.96	-0.18
	(2.54)	(1.45)	(0.49)	(-0.02)
R^2	0.51	0.51	0.51	0.51
no. of obs.	95	91	94	90

Notes: * = significant at 10% level, ** = significant at 5% level

Table 6.17: Regression results: Panel estimates for growth determinants (I)

Estimation method: Random-effects model Sample period: 1992-2000 Dependent variable: real GDP growth				
	(1)	(2)	(3)	(4)
lninf	-2.14**	-1.97**	-1.74**	-1.68**
	(-4.65)	(-4.04)	(-3.27)	(-3.05)
lninf (t-1)			-0.63	-0.60
			(-0.98)	(-0.90)
gov	-0.06	-0.12	-0.26	-0.30*
	(-0.59)	(-1.06)	(-1.58)	(-1.69)
gov (t-1)			0.31*	0.32*
			(1.82)	(1.69)
price	-0.36	-0.41	-0.18	-0.19
	(-1.18)	(-1.23)	(-0.57)	(-0.53)
tariff	0.35	0.47*	0.33	0.42
	(1.51)	(1.80)	(1.33)	(1.49)
bad loans	-0.09**	-0.10**	-0.11**	-0.12**
	(-2.65)	(-2.84)	(-3.22)	(-3.21)
subsidies	0.25	0.22	0.43	0.41
	(0.88)	(0.71)	(1.40)	(1.24)
tax	-0.03	-0.05	-0.05	-0.08
	(-0.67)	(-0.90)	(-1.06)	(-1.26)
investment		0.14		0.15
ratio		(1.20)		(1.12)
GDP p.c.	0.01	0.01	-0.01	-0.01
in 1992	(0.05)	(0.17)	(-0.36)	(-0.22)
constant	13.87**	13.75**	12.05**	11.18**
	(3.67)	(3.12)	(2.82)	(2.24)
R^2	0.46	0.47	0.47	0.58
no. of obs.	87	83	86	85

Notes: * = significant at 10% level, ** = significant at 5% level

Table 6.18: Regression results: Panel estimates for growth determinants (II)

Estimation method: Fixed-effects model Sample period: 1992-2000 Dependent variable: change in labour productivity		
	(1)	(2)
price	0.23	0.33
	(0.19)	(0.24)
tariff	1.09	0.89
	(1.36)	(1.07)
bad loans	-0.25**	-0.28**
	(-2.04)	(-2.23)
subsidies	-1.83**	-2.03**
	(-2.21)	(-2.41)
tax	0.31	0.10
	(1.27)	(0.38)
investment ratio		0.11
		(0.24)
constant	-1.66	2.36
	(-0.56)	(0.11)
R^2	0.20	0.22
no. of obs.	96	91

Notes: * = significant at 10% level, ** = significant at 5% level

Table 6.19: Regression results: Panel estimates for productivity determinants

	inflation	inflation (t-1)	gov	gov (t-1)	price	tariff	subsidies	bad loans	tax	initial gdp
inflation	1.00									
inflation(t-1)	0.74	1.00								
gov	-0.18	0.05	1.00							
gov(t-1)	-0.38	-0.15	0.90	1.00						
price	0.28	0.26	0.14	0.01	1.00					
tariff	-0.04	0.13	0.44	0.47	0.05	1.00				
subsidies	-0.34	0.27	0.21	0.04	0.09	0.02	1.00			
bad loans	0.09	0.05	-0.07	-0.02	0.23	0.06	0.04	1.00		
tax	-0.58	-044	0.60	0.72	0.01	0.19	-0.09	-0.07	1.00	
initial gdp	-0.39	-0.27	0.55	0.60	0.02	0.40	0.10	-0.08	0.63	1.00

Table 6.20: Correlation matrix of liberalisation and competition variables